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Canada, Tariff Board.



CANADA

Report by
THE TARIFF BOARD

Relative to the Inquiry Ordered
by the Minister of Finance
respecting

**Machinery and Equipment Used in the Mining
Industry and in the Oil and Gas Industries**

•

VOLUME 1

OILFIELD EQUIPMENT

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THE TARIFF BOARD

Relative to the Inquiry Ordered
by the Minister of Finance
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**Machinery and Equipment Used in the Mining
Industry and in the Oil and Gas Industries**



VOLUME 1
OILFIELD EQUIPMENT



Reference No. 130

Published by
ROGER DUHAMEL, F.R.S.C.
Queen's Printer and Controller of Stationery
Ottawa, Canada

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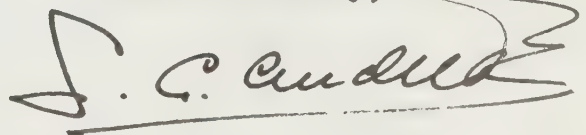
The Honourable George C. Nowlan,
Minister of Finance,
Ottawa, Ontario.

Dear Mr. Nowlan:

I refer to Mr. Fleming's letter of July 8, 1960, in which he requested the Tariff Board to conduct an inquiry respecting machinery and equipment used in the mining industry and the oil and gas industries.

In conformity with Section 6 of the Tariff Board Act, I have the honour to transmit Volume 1 of the Report of the Board, in English and French. This volume relates to oilfield equipment. A copy of the transcript of the proceedings at the public hearings accompanies the Report. The second volume will deal with mining equipment; as soon as this is ready I will transmit it to you.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "J. C. Audette", with a stylized flourish at the end.

Chairman

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Explanation of Symbols Used

- Denotes nil or zero
- .. Indicates that figures are not available
- * Indicates a reported figure which disappears on rounding
- (a) A small letter in brackets denotes a footnote to a table
- (1) A number in brackets denotes a footnote to the text
- s.c. Denotes an import statistical class

THE TARIFF BOARD

Reference No. 130

An Inquiry Respecting Machinery and Equipment Used
in the Mining Industry and the Oil and Gas Industries

The letter from the Minister of Finance, dated July 8th, 1960, directing the Tariff Board to conduct an inquiry respecting machinery and equipment used in the mining industry and the oil and gas industries reads as follows:

"I have received a number of representations to the effect that the provisions of the Customs Tariff relating to machinery and equipment used in the mining industry and the oil and gas industries are in need of review and revision in the light of developments which have taken place since many of the present provisions were introduced.

"I, therefore, direct the Tariff Board to make a study and report under section 4(2) of the Tariff Board Act on tariff items in Schedules "A" and "B" of the Customs Tariff which relate to machinery and equipment used in the mining industry and the oil and gas industries. It is my intention that this study cover the following tariff items in their entirety:-

410a(i)	410e	410k	410p	410x
(ii)	410f(1)	410l	410q	410y
(iii)	(2)	410m(1)	410r	410z
(iv)	410g	(2)	410s	848
410b	410h	410n	410t(1)	848a
410c(i)	410i(1)	410o(i)	(2)	848b
(ii)	410i(2)	(ii)	410v	1047
410d	410j	(iii)	410w	1059

It should also cover tariff item 399a in so far as it relates to sucker rods, pony rods, polished rods and couplings, seismograph drilling bits, and to tariff items 399c, 442d, 1056 and 1058 in so far as they relate to parts or materials for use in the production of goods specified in the tariff items referred to above.

"If the Board's study should indicate that amendments to the foregoing items in the Customs Tariff are desirable, I request it to prepare a revised schedule of tariff items, with recommendations as to rates of duty."

This volume of the Report deals with the machinery and equipment used in the oil and natural gas industries; for brevity, the various types of machinery and equipment are referred to collectively as oilfield equipment. The tariff items under review in this volume include items 399a, 399c, 410b, 410c, 410d, 410e, 848, 848a, 848b, 1047 and 1059; the full wording and the history of these items are given in Appendix A. The machinery and equipment used in the mining industry, and the tariff items applicable thereto, will be reviewed in Volume 2 of this Report.

Public hearings respecting oilfield equipment were held in Calgary from May 23 to May 25, 1961 and in Ottawa from June 5 to June 7, 1961.

A list of the Companies and Associations which made representations to the Board follows:

Algoma Steel Corporation, Limited, The, Sault Ste. Marie, Ont.
 American-Standard Products (Canada) Ltd., Toronto, Ont.
 Anaconda American Brass, Limited, New Toronto, Ont.
 Associated Electrical Industries (Canada) Ltd., Toronto, Ont.
 Atlas Steels Limited, Welland, Ont.
 Bridge & Tank Western Ltd., Winnipeg, Man.
 British American Oil Company Limited, The, Toronto, Ont.
 Canadian Association of Oilwell Drilling Contractors, Calgary, Alta.
 Canadian Boiler Society, Water Tube Section, Montreal, P.Q.
 Canadian Diamond Drilling Association, Toronto, Ont.
 Canadian Electrical Manufacturers Association, Toronto, Ont.
 Canadian Petroleum Association, Calgary, Alta.
 Chemical Developments of Canada Limited, Montreal, P.Q.
 Cities Service Athabasca, Inc., Edmonton, Alta.
 Dominion Foundries and Steel, Limited, Hamilton, Ont.
 Dominion Steel and Coal Corporation, Limited, Montreal, P.Q.
 Donald Ropes & Wire Cloth Limited, Hamilton, Ont.
 Foster Wheeler Limited, St. Catharines, Ont.
 Group of Canadian Manufacturers of Oilfield Equipment, comprising:
 Alberta Oil Tool Co. Ltd., Edmonton, Alta.
 Argus Machine Co. Ltd., Edmonton, Alta.
 Black, Sivalls & Bryson Ltd., Edmonton, Alta.
 Cameron Iron Works of Canada Limited, Edmonton, Alta.
 Canada Foundries & Forgings, Limited, Welland and Brockville, Ont.
 Canadian Equipment Sales & Service Co. Ltd., Edmonton, Alta.
 Christensen Diamond Petroleum Ltd., Edmonton, Alta.
 Coutts Machinery Co., Limited, Edmonton, Alta.
 Davis-Lynch Inc., Edmonton, Alta.
 Dominion Bridge Co., Limited, Edmonton, Alta.
 Dominion Forge Company, Division of Canman Industries Limited, Windsor, Ont.
 Engineering Specialties (Alberta) Ltd., Calgary, Alta.
 Esco Limited, Vancouver, B.C.
 Foothills Steel Foundry & Iron Works Ltd., Calgary, Alta.
 Gray Forgings & Stampings Limited, Toronto, Ont.
 LeGrand Limited, Calgary, Alta.
 Liberty Machine Works Limited, Edmonton, Alta.
 Maloney-Crawford Tank & Service Co. Ltd., Edmonton, Alta.

McCoy Brothers Limited, Edmonton, Alta.
 Northern Hydraulic Services Ltd., Edmonton, Alta.
 Premier Steel Mills Ltd., Edmonton, Alta.
 Premier Steel Products Ltd., Edmonton, Alta.
 Rice Machine Services Ltd., Calgary, Alta.
 Saskatchewan Steel Fabricators Ltd., Regina, Sask.
 Weatherford Oil Tool Co. Ltd., Edmonton, Alta.
 Hart Products Co. of Canada, Ltd., Guelph, Ont.
 Hughes Tool Service Limited, Calgary, Alta.
 Imperial Oil Limited, Toronto, Ont.
 Industrial Instrument Manufacturers Association, Toronto, Ont.
 Inglis, John, Co. Limited, Toronto, Ont.
 Laporte Chemicals Limited, London, England.
 Lever Brothers Limited, Toronto, Ont.
 Machinery & Equipment Manufacturers' Association of Canada,
 Montreal, P.Q.
 Montreal Locomotive Works Limited, Montreal, P.Q.
 Noranda Copper and Brass Limited, Montreal, P.Q.
 Process Equipment Limited, Lachine, P.Q.
 Ratcliffs (Canada) Limited, Richmond Hill, Ont.
 Richfield Oil Corporation, Calgary, Alta.
 Royalite Oil Company, Limited, Calgary, Alta.
 Rubber Association of Canada, The, Toronto, Ont.
 Steel Company of Canada, Limited, The, Hamilton, Ont.
 Toronto Iron Works, Limited, The, Toronto, Ont.
 Union Carbide Canada Limited, Toronto, Ont.
 Victoria Machinery Depot Co., Limited, Victoria, B.C.
 Western Copper Mills Ltd., New Westminster, B.C.
 Wolverine Tube, Division of Calumet & Hecla of Canada Limited,
 London, Ont.

Representatives of the following interests were present at the public hearings, but did not make representations:

Alberta, Province of, Edmonton, Alta.
 Anchor Packing Co., Limited, The, Edmonton, Alta.
 Boyles Bros. Drilling Company Ltd., Vancouver, B.C.
 Calgary Power Ltd., Calgary, Alta.
 Canadian General Electric Company Limited, Toronto, Ont.
 Canadian Ingersoll-Rand Co., Limited, Calgary, Alta.
 Canadian Mannex Corporation Limited, Calgary, Alta.
 Canadian Manufacturers' Association, The, Toronto, Ont.
 Canadian Vickers Ltd., Montreal, P.Q.
 Commonwealth Drilling Co. Ltd., Calgary, Alta.
 Daystrom Industrial Co. Ltd., Cooksville, Ont.
 Denton-Spencer Company Ltd., Calgary, Alta.
 Department of Mines and Technical Surveys, Ottawa, Ont.
 Department of National Revenue, Ottawa, Ont.
 Dominion Rubber Co., Limited, Montreal, P.Q.
 Double-A Drilling Company Limited, Calgary, Alta.
 General Petroleum Drilling Co. Ltd., Calgary, Alta.
 Goodrich, B.F., Canada Limited, Kitchener, Ont.
 Halliburton Oil Well Cementing Co. Ltd., Calgary, Alta.
 Hayes Steel Products Limited, St. Catharines, Ont.
 Hudson's Bay Oil & Gas Co. Ltd., Calgary, Alta.

Jones & Laughlin Steel, Calgary, Alta.
 Mannesmann Tube Co. Ltd., Sault Ste. Marie, Ont.
 Maze & Hickey Ltd., Edmonton, Alta.
 Mission Manufacturing Co., Calgary, Alta.
 Mobil Oil of Canada, Calgary, Alta.
 Oil Well Supply, Calgary, Alta.
 Pacific Petroleums Ltd., Calgary, Alta.
 Page-Hersey Tubes, Limited, Toronto, Ont.
 Pan American Petroleum Corporation, Calgary, Alta.
 Parker Drilling Co. of Canada Limited, Calgary, Alta.
 Petrogas Processing Ltd., Calgary, Alta.
 Quebec, Province of, Quebec, P.Q.
 Reed Roller Bit Co. of Canada Ltd., Calgary, Alta.
 Robb, Joseph, & Company Ltd., Edmonton, Alta.
 Seismic Service Supply (1958) Limited, Calgary, Alta.
 Shell Oil Company of Canada, Limited, Calgary, Alta.
 Smit, J.K., & Sons, of Canada Limited, Toronto, Ont.
 Stearns-Roger Engineering Company Ltd., Calgary, Alta.
 Sun Oil Company, Calgary, Alta.
 Thompson Products, Limited, St. Catharines, Ont.
 Trans-Canada Pipe Lines, Calgary, Alta.
 United Kingdom Trade Commissioner, Edmonton, Alta.
 Westcoast Transmission Company Limited, Vancouver, B.C.
 Williams Oil Tool Manufacturing Ltd., Calgary, Alta.
 Wilson Oilfield Supply Ltd., Calgary, Alta.

THE SCOPE

This volume of the Report deals with most of the machinery and equipment used in exploration and development of oil and natural gas wells. The principal categories of oilfield equipment are drilling rigs, well completion equipment, gas and oil treating equipment, temporary storage tanks and natural gas processing equipment. Considered also are the various materials used in the manufacture of oilfield equipment. Annual imports of the machinery and equipment considered in this volume fluctuate between 40 and 60 million dollars and consist mostly of drilling equipment. Canadian production of drilling equipment has been negligible.

The two categories of oilfield equipment not considered in this Report are drill pipe and the so-called oil-country goods, namely casing, tubing and their fittings and couplings. These are classified for customs purposes under tariff items, or parts of tariff items, which were not included in the letter of reference.

The machinery and equipment under review may be classified for customs purposes under seven different tariff items: 399a, 410b, 410c, 410d, 410e, 848 and 848a. Of these, tariff item 848 is by far the most important in terms of imports; it is under this item that most of the oilfield equipment, other than that used in processing natural gas, is normally entered. The equipment for natural gas processing plants has been classified under tariff item 410b. The remaining five items provide specifically for certain types of oilfield equipment, or for such equipment when used for purposes other than drilling for oil or natural gas. Thus, drill bits of certain sizes used chiefly in seismic explorations are provided for in tariff item 399a, as are certain parts of oilwell pumping units, namely sucker rods, pony rods, polished rods and the couplings for them. Wire rope of a certain minimum length used in drilling oil and natural gas wells and for raising and lowering the casing for such wells is provided for in tariff item 410e. There is also tariff item 410c which relates to machinery and equipment used in producing oil from shales and tar sands. Tariff item 410d provides for well-drilling equipment which, as far as drilling for oil and natural gas is concerned, is also eligible for entry under tariff item 848; it is understood that most of the equipment used in drilling for oil or natural gas is, in fact, entered under the latter item. Finally, there is tariff item 848a under which oilfield drilling equipment can be entered for use in drilling for potash or rock salt.

The materials for use in the manufacture of the oilfield equipment considered in this volume are provided for in tariff items 399c and 848b, and in drawback items 1047 and 1059.

Some of the tariff items providing for machinery and equipment for use in the production of petroleum and natural gas also provide for machinery and equipment for the mining and processing of minerals. To the extent that this is so, such items are reviewed also in the second volume of this Report.

The full wording of the tariff items applicable to the machinery and equipment under review in this part of Reference 130 is given in Appendix A, together with notes on their history.

DESCRIPTION AND USES

The equipment used in modern oilfield operations comprises virtually hundreds of different items, many of which are highly specialized. Because of this, and because of the relative isolation of the petroleum and natural gas industry from other fields of industrial activity, there has developed a terminology which is unique and, consequently, unintelligible to the uninitiated. It is the purpose of this section to give the reader who is not familiar with the petroleum and natural gas industry a description of the more important pieces of oilfield equipment and to acquaint him with some of the terminology; this should make it easier to follow the more detailed discussion in later sections.

The production of oil or natural gas is usually preceded by considerable exploratory activity. The exploratory work is carried out by teams of geologists and other specialists equipped with various geophysical surveying instruments, the more important of which are the seismograph and the magnetometer. In seismic exploration, vibrations are created in the underground formation by discharging explosives in shallow holes drilled for the purpose; the nature and velocity of the vibrations as recorded by the seismograph indicate the composition of the strata through which the vibrations have passed. In magnetic surveying, the composition of the underground formation is determined by measuring its magnetic intensity, or pull, by means of the magnetometer. There are many other instruments used in geophysical explorations, including the geiger-counter and scintillometer, used in radio-active exploration, as well as a variety of electrical and electronic devices used in electrical, electromagnetic and hydrographic surveying.

Once the likelihood of the presence of oil or gas in a formation has been indicated, drilling activity may begin. Exploratory or wild-cat drilling, that is, sinking of test wells in unexplored territory, is usually distinguished from developmental drilling, which is drilling additional wells in an already proven area. Normally, identical equipment is used in both wild-cat and developmental drilling; it encompasses many different items known collectively as the drilling rig.

There are two basic types of drilling rigs used in drilling for oil and natural gas, namely cable-tool and rotary. They differ from one another in the method used to penetrate the earth's crust. The cable-tool rig employs the percussive action of a heavy steel blade, known as the bit, which is alternately lifted and lowered by means of a wire rope, or cable. The cable-tool method of drilling is relatively slow and laborious; it is normally used to drill to depths of less than 6,000 feet. The use of cable-tool rigs in drilling for oil and natural gas appears to have declined over the years; in Canada they are used for this purpose to a limited extent only, chiefly in south-western Ontario.

Most of the drilling for oil and natural gas today is done with rotary drilling rigs. In this method, the penetration is achieved by rotation, rather than percussion. A complete rotary drilling rig may cost anywhere from \$250,000 to \$1,000,000, depending on its capacity to drill to certain depths; this may range from 2,000 to 16,000 feet. However, a drilling rig is not normally purchased as a single unit; rather, the various components are individually selected, partly on the basis of their suitability to perform under specific drilling conditions and partly on the basis of the driller's personal preference. Thus, it is probably true that there are no two drilling rigs in the world which are exactly alike.

The principal purpose of a rotary drilling rig has, euphemistically, been stated to be: to keep the bit on the bottom, turning to the right. Simultaneously, motive power has to be generated and supplied to the bit, the bit must be lowered as it penetrates deeper, it must be lubricated and the cuttings cleared away. For the performance of these operations, a modern rotary drilling rig is equipped with many different pieces of equipment, the more important of which are described below in greater detail; an illustration of a typical rotary drilling rig appears on the following page.

The mast or derrick is the most visible, and to a casual visitor to a drilling site probably the most impressive, part of the drilling rig. It is a tower made of steel shafts rising to a height of as much as 200 feet above the ground. The principal purpose of the derrick is to carry the weight of the drilling string and to enable the string to be raised and lowered during the drilling operations. Many of the derricks used today are of the folding or telescoping type and can be moved from one location to another on trucks or trailers.

The actual task of drilling the well is performed by the drilling string, which extends below the derrick floor to the bottom of the hole and, consequently, is not normally visible during the drilling operation. The drilling string consists of a drill bit at the bottom, a number of drill collars immediately above the bit, and joints of drill pipe extending for the remainder of the distance to the surface.

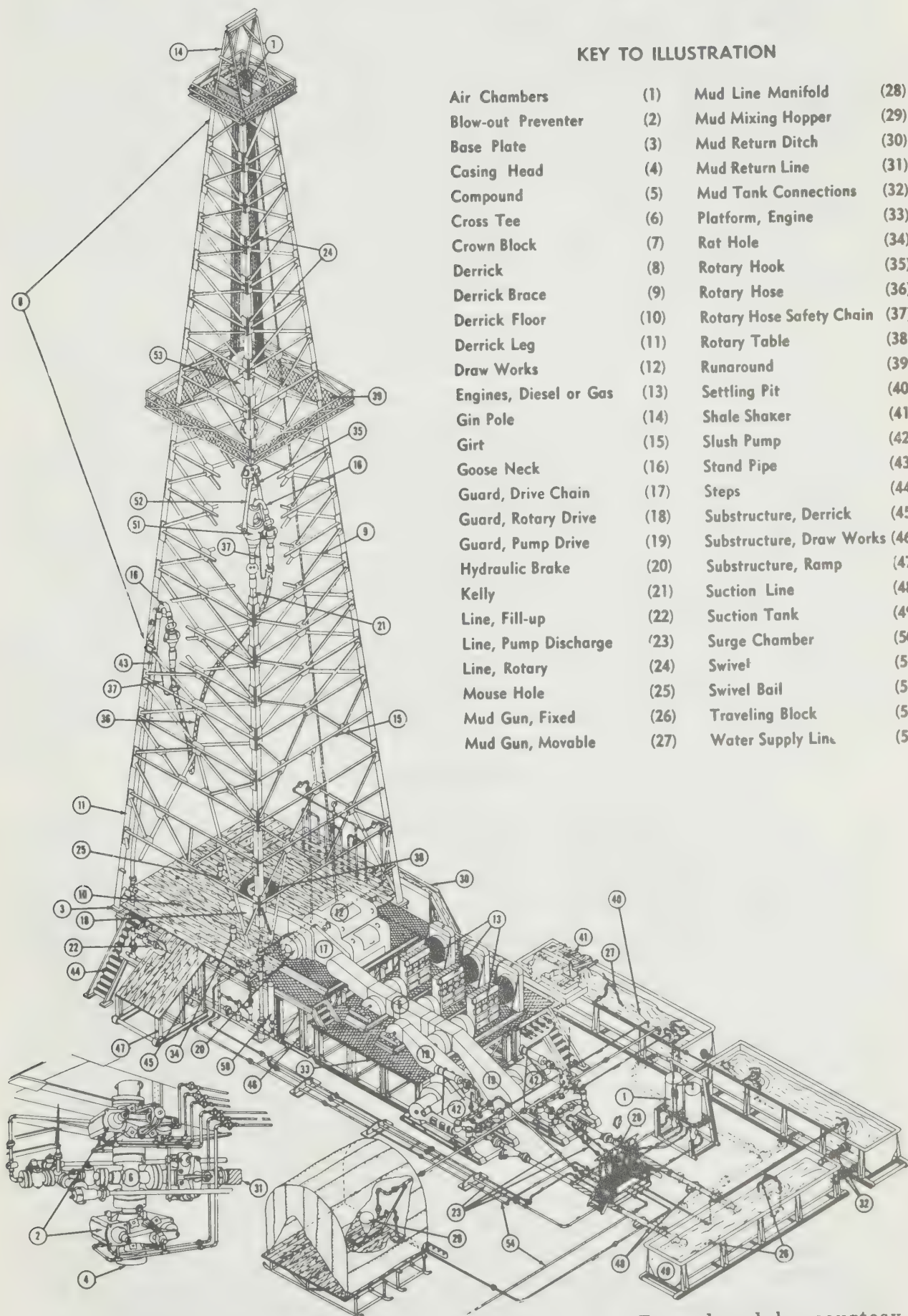
The drill bit is the most critical and, in relation to its size, the most expensive single item of drilling equipment. On its continued satisfactory performance depends the success of drilling; its failure underground may necessitate a costly fishing, or retrieving, operation. There are three basic types of rotary drill bits used in drilling for oil and natural gas. These are known as the roller cone, diamond, and drag or fish-tail bits.

Most of the drilling in Canada is done by means of the roller cone bits, sometimes referred to simply as rock bits. These consist of an alloy steel head into which are set two or three cones mounted on roller bearings. Depending on the number of cones, roller cone bits are referred to as two-cone or tri-cone bits respectively; most of those now used are of the tri-cone type. The

DRILLING RIG

KEY TO ILLUSTRATION

Air Chambers	(1)	Mud Line Manifold	(28)
Blow-out Preventer	(2)	Mud Mixing Hopper	(29)
Base Plate	(3)	Mud Return Ditch	(30)
Casing Head	(4)	Mud Return Line	(31)
Compound	(5)	Mud Tank Connections	(32)
Cross Tee	(6)	Platform, Engine	(33)
Crown Block	(7)	Rat Hole	(34)
Derrick	(8)	Rotary Hook	(35)
Derrick Brace	(9)	Rotary Hose	(36)
Derrick Floor	(10)	Rotary Hose Safety Chain	(37)
Derrick Leg	(11)	Rotary Table	(38)
Draw Works	(12)	Runaround	(39)
Engines, Diesel or Gas	(13)	Settling Pit	(40)
Gin Pole	(14)	Shale Shaker	(41)
Girt	(15)	Slush Pump	(42)
Goose Neck	(16)	Stand Pipe	(43)
Guard, Drive Chain	(17)	Steps	(44)
Guard, Rotary Drive	(18)	Substructure, Derrick	(45)
Guard, Pump Drive	(19)	Substructure, Draw Works	(46)
Hydraulic Brake	(20)	Substructure, Ramp	(47)
Kelly	(21)	Suction Line	(48)
Line, Fill-up	(22)	Suction Tank	(49)
Line, Pump Discharge	(23)	Surge Chamber	(50)
Line, Rotary	(24)	Swivel	(51)
Mouse Hole	(25)	Swivel Bail	(52)
Mud Gun, Fixed	(26)	Traveling Block	(53)
Mud Gun, Movable	(27)	Water Supply Line	(54)



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cones are equipped with two or three rows of cutting teeth. Penetration is achieved by the crushing and wedging action of the teeth as the cones rotate during the drilling operation. In certain types of rock bits, the cutting teeth are replaced by tips or inserts of sintered tungsten carbide; such bits are particularly suited for use in very hard, abrasive formations. There are many different types of two-cone and tri-cone rock bits, varying in size and in the shape and positioning of the cutting teeth, or of the tungsten carbide inserts; one manufacturer is said to make roller cone bits in about 1,900 different variations, ranging in size from $3\frac{3}{4}$ to 26 inches. The roller cone bits are usually not sold but rather are leased to the user on condition that they be returned to the manufacturer when the cutting teeth or the bearings become worn out. The lease price may range anywhere from \$100 to \$2,000 depending on the type and the size of the bit.

Diamond bits employ the sharp edges of cut industrial diamonds to grind through the formation. The diamonds are set and fused into the head of the bit in a carefully selected pattern. The pattern includes spiral grooves, known as water-ways, which serve to channel the drilling fluid around to pick up the cuttings. When the cutting edges of the diamonds wear out, they may be returned to the manufacturer for re-setting. The diamond bits are, normally, the most expensive of all drill bits used in drilling for oil or natural gas. Ranging in size from about $3\frac{1}{2}$ to $9\frac{3}{4}$ inches, they are sold at prices from about \$1,300 to \$10,000 depending on the size and the quality of the diamonds used. The cost of the diamonds represents by far the largest part of the total cost of the bit. Most of the diamond bits used in the petroleum and natural gas industry are used for coring. This is an operation designed to obtain a sample of a formation for geological testing purposes. The diamond bits used for this purpose are hollow in the middle allowing a columnar core to pass through as the diamonds drill around it.

Drag or fish-tail bits consist of two or more irregularly shaped blades, sometimes resembling the tail of a fish, which are affixed at angles to each other. They penetrate the formation by cutting through it. The blades may be either of high-quality alloy steel, usually tipped with tungsten carbide and permanently welded to the head of the bit, or they may be made entirely of tungsten carbide. The tungsten carbide insert blades can be replaced when they wear out. As in the case of the roller cone and diamond bits, provision is made for the drilling fluid to clear away the cuttings. The drag or fish-tail bits are used chiefly in very soft formations or for drilling relatively shallow holes, such as those used in seismic explorations. They range from 3 to 30 inches in size and from about \$40 to \$400 in price.

The seismograph drilling bits, referred to in tariff item 399a, may be of any of the three types described above, although most of those used are of the roller cone type. Seismograph bits are used to drill the relatively small, shallow holes required in seismic exploration. The bits are very similar in appearance to those used in drilling a well, but because of the smaller depths

involved they are built to far less rigorous standards of quality and performance; consequently, they are less costly than comparable bits used in developmental drilling. Most of the seismograph drilling bits used are in the range of $3\frac{1}{2}$ to $4\frac{3}{4}$ inches in size.

The drill collars and the drill pipe form the main portion of the drilling string, immediately above the bit. The drill collars are steel pipes weighing anywhere from one-half to two tons and usually 30 feet in length. Their sole purpose is to supply the weight required by the bit to drill efficiently. The number of drill collars in a drilling string usually varies from two to twenty, depending on the weight which is required. Between the top-most drill collar and the surface is the drill pipe. This is seamless steel pipe in lengths, known as joints, of 20, 30 or 40 feet and from $2\text{-}3/8$ to $6\text{-}5/8$ inches in diameter. As noted previously, drill pipe is not under review in this Report, being provided for in a tariff item which was not included in the Minister's letter of reference.

The drilling string, with the drill bit at its end, is rotated by means of a square or hexagonal hollow steel shaft known as the kelly. The kelly, which is immediately above the top-most joint of drill pipe, passes through the rotary table in the floor of the derrick; as the rotary table revolves, the kelly and with it the entire drilling string rotate also. The upper end of the kelly is attached to a hollow cylinder made of steel, known as the swivel. Its function is to provide a connection between the drilling string and the mud system. Superimposed over the top of the swivel is a large bail by means of which the swivel, and with it the entire drilling string, are suspended from the rotary hook of the traveling block.

The traveling block is part of the mechanism used to control the vertical movement of the drilling string; the other parts are the crown block and the draw-works. The traveling block and the crown block are sets of multiple pulleys, the latter in a fixed position at the very top of the derrick and the former suspended from it by means of a wire rope, known as the rotary line; the other end of the line is wound up on a drum within the draw-works located on the derrick floor. The draw-works is, essentially, a large winch equipped with a set of gears and a braking mechanism. As drilling progresses, the driller operates the brakes allowing the rotary line to unwind, thus lowering the traveling block and the drilling string suspended from it; similarly, at the end of the operation, or when a change in the drill bit or drill pipe is required, he causes the rotary line to wind back onto the drum, hoisting the drilling string out of the hole. As the drilling string may weigh several hundred tons, the draw-works must possess considerable strength.

During the drilling operation, the drill bit must be cooled, cleaned and lubricated and the cuttings carried away from the bottom of the hole. The walls of the well must be sealed off to prevent the entry of gases and fluids into the hole while, at

the same time, preventing the loss of oil or gas into the pores or fissures in the rock. Last but not least, sufficient weight must be applied to prevent natural pressures underground from blowing up the well. All of these tasks are performed by the mud system, which circulates the drilling fluid to the bottom of the hole and up to the surface again. The principal components of the mud system are the slush pumps, the shale shaker and a set of tanks which form the settling or mud pit alongside the derrick. The slush pumps are powerful, high-pressure pumps which provide the pressures necessary to circulate the drilling fluid. The shale shaker is a wire screen which vibrates rapidly, allowing the drilling fluid to fall through into the mud pit, while carrying the coarse cuttings away for discard. The passage of the drilling fluid through the mud system is shown in greater detail in the illustration on the following page.

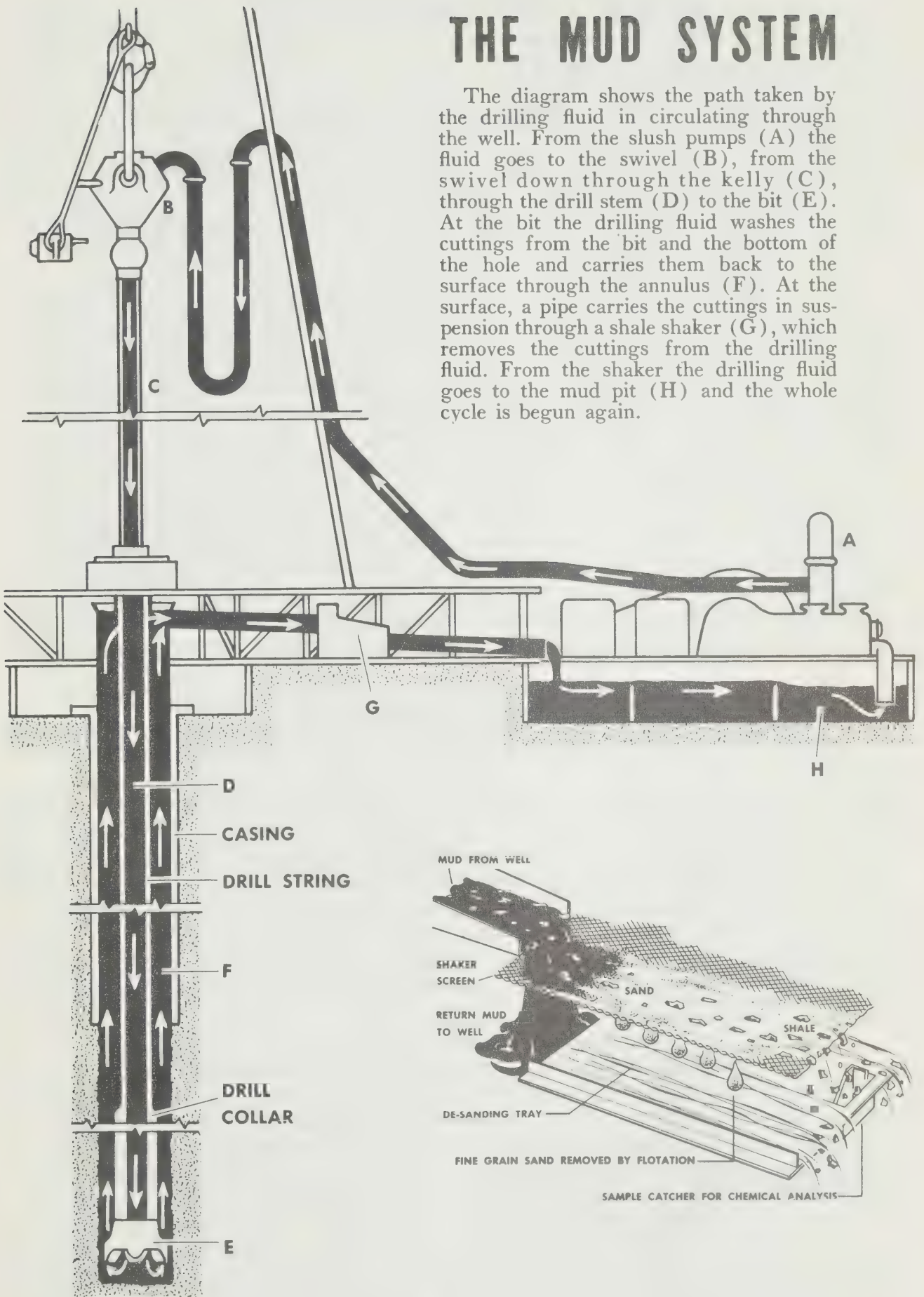
The drilling fluid, more commonly referred to as the mud, is one of the more important expendable items used in drilling for oil and natural gas. As much as 2,000 barrels of the fluid may be in the circulating system at any one time; the cost of the fluid is about \$20 a barrel and the total cost in one drilling operation may be as much as \$250,000. Originally, drilling mud was exactly what the words imply. As a new well was started, or spudded, water was pumped down the hole and soon turned into mud owing to the particles of earth which became suspended in it. Modern drilling muds still frequently contain large quantities of water to provide fluidity, although in some instances light oils, such as diesel oil, may be substituted. However, the mud-forming is no longer left up to the haphazard mixing of particles underground; rather, the mud is prepared in mud tanks located on the surface by adding to the water exactly measured and carefully selected quantities of chemical and other materials.

A considerable amount of power is required to rotate and hoist the drilling string, to circulate the mud and to perform a variety of ancillary operations around the rig. The type of motive power used will depend on many factors, including location, amount of space available on the rig, and the relative cost and availability of fuels. In Canada, diesel engines are most frequently used. To ensure an adequate provision of power and smoothness of operation, they are usually employed in banks of two, three or more coupled together; the total power generated for use on a rotary drilling rig is often well in excess of 1,000 horsepower.

One of the most dangerous and costliest risks of drilling for oil or natural gas is the possibility of a blow-out. A blow-out occurs when the weight of the drilling fluid in the mud system is not adequate to contain the natural pressures in the formation being drilled. Blow-outs range in size and in effect from the relatively small ones, requiring only an adjustment in the weight of the mud column before drilling operations can be resumed, up to the spectacular ones accompanied by fire which may destroy most of the drilling equipment and may rage out of control for several days or weeks. To guard against the possibility of a blow-out and to minimize its effects a massive piece of equipment, known as the

THE MUD SYSTEM

The diagram shows the path taken by the drilling fluid in circulating through the well. From the slush pumps (A) the fluid goes to the swivel (B), from the swivel down through the kelly (C), through the drill stem (D) to the bit (E). At the bit the drilling fluid washes the cuttings from the bit and the bottom of the hole and carries them back to the surface through the annulus (F). At the surface, a pipe carries the cuttings in suspension through a shale shaker (G), which removes the cuttings from the drilling fluid. From the shaker the drilling fluid goes to the mud pit (H) and the whole cycle is begun again.



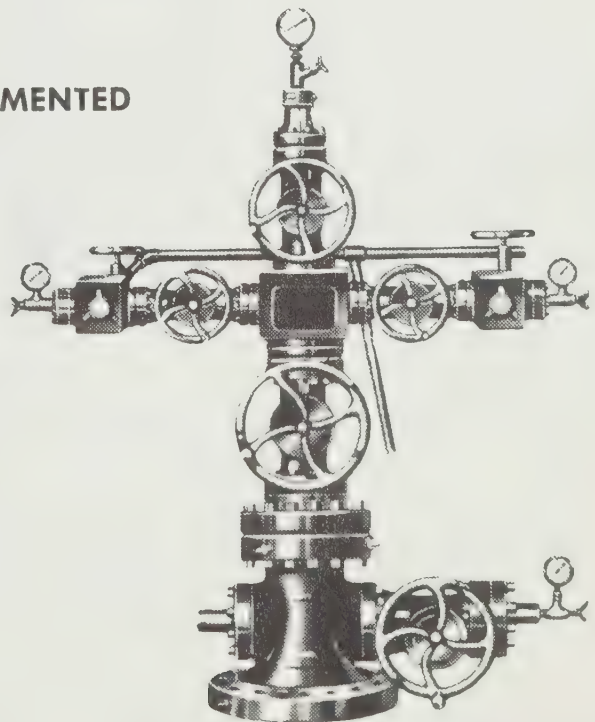
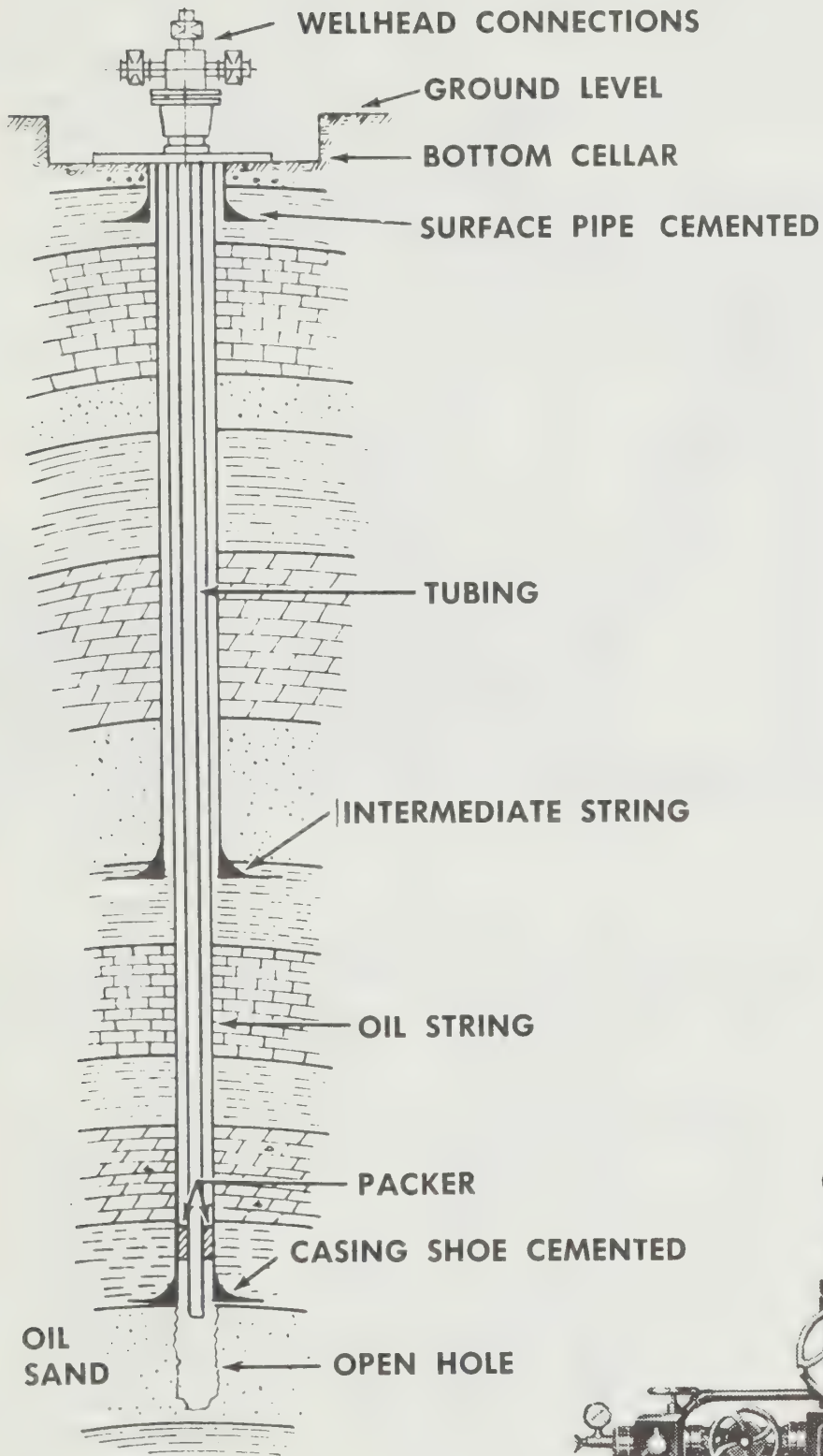
blow-out preventer, is installed immediately below the floor of the derrick, in an area referred to as the derrick sub-structure. The blow-out preventer consists of two pairs of rams which can be closed and opened either hydraulically from the floor of the derrick, or manually by means of large wheels located at the side of the sub-structure; the rams are used to close off the hole, when a blow-out threatens. As the drilling string has to be removed before the hole can be completely sealed off, the efficacy of the blow-out preventing system depends to a considerable extent on the alertness and speed of the driller and his crew.

As drilling progresses, the portion of the well that has already been drilled and, eventually, the entire well must be protected against cave-in and seepage of undesirable elements, such as water. This is achieved by inserting into the well-bore joints of steel pipe, known as the casing. Usually, three strings of casing are used, known as the surface, intermediate and oil string; they are placed one inside the other with a clearance of one-half of an inch or more between them. Within the innermost string of casing is another string of pipe, known as the tubing. It is through the tubing that the oil or gas reaches the surface. The completion of a typical producing well is shown in the illustration on the following page. The pipe used as casing or tubing is, of course, not under review in this Report, being provided for in that portion of tariff item 399a which is not before the Board in this Reference.

The casing and the tubing are suspended at the surface from what are known as the casing and the tubing heads, respectively. The heads for the successive strings of casing are superimposed and attached to each other, with the tubing head resting on the head which supports the last, or innermost, string of casing. The casing and tubing heads together form the wellhead, such as that illustrated in the right bottom corner of the following page. The heads are made of cast or forged steel and contain various fittings designed to hold the weight of the casing or tubing and to prevent oil or gas from leaking at the surface. They are rated according to their capacity to withstand pressure, which is usually expressed in terms of pounds per square inch (p.s.i.); some are designed to work under pressures of up to 10,000 p.s.i.

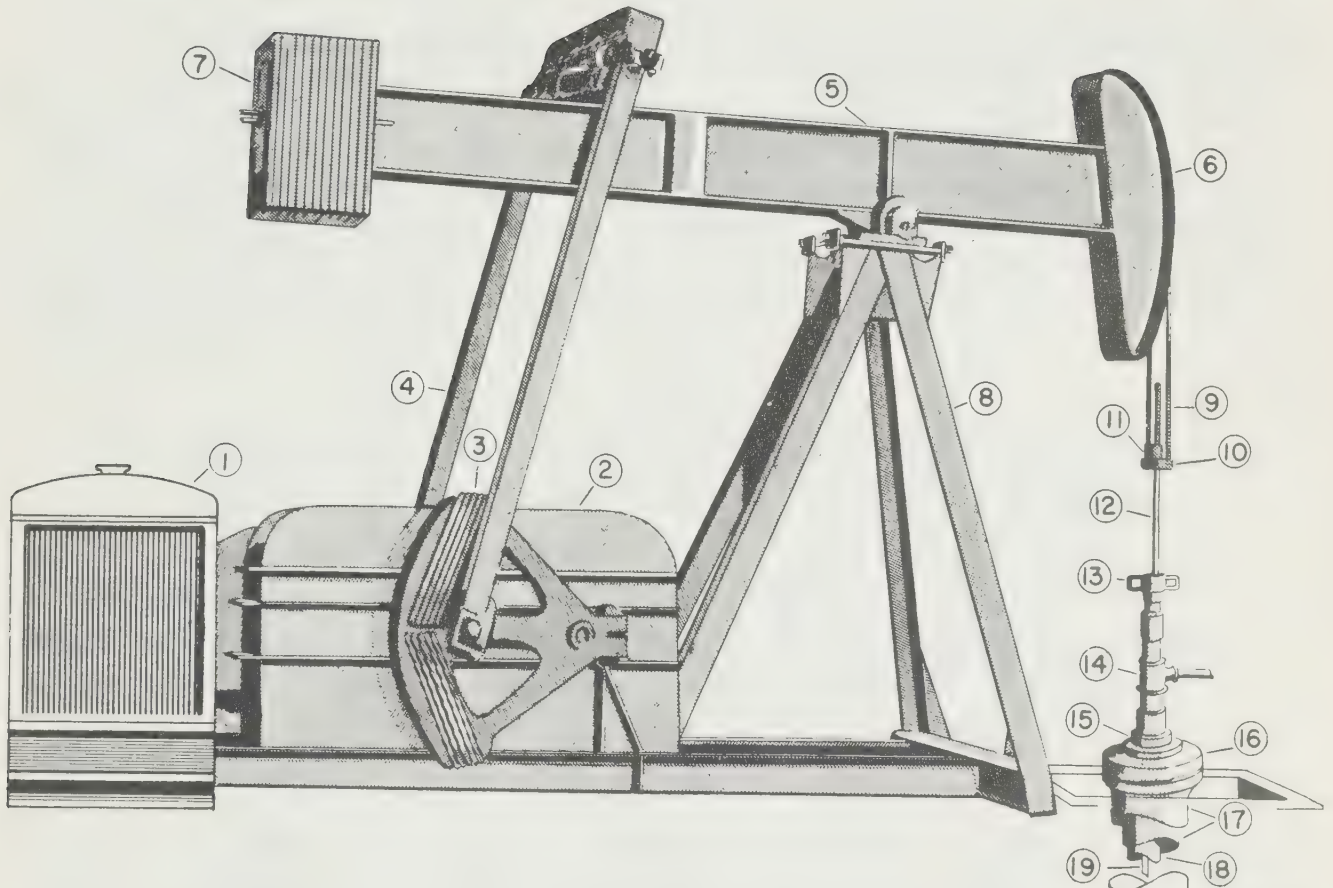
In addition to being suspended from the wellhead, the successive strings of casing must also be cemented to the walls of the well. This is required to prevent the casing from moving in the well and to exclude water and other fluids from entering the well-bore. The cementing is accomplished by pumping cement slurry down through the casing to the bottom of the well, and then forcing it up again to fill in the space between the casing and the walls of the well. A variety of special equipment is used to force the cement slurry into the well and to ensure that each string of casing is properly positioned in it. Some of this equipment is described in greater detail under the heading "Cementing Equipment" in the section dealing with the Canadian market.

PRODUCING WELL



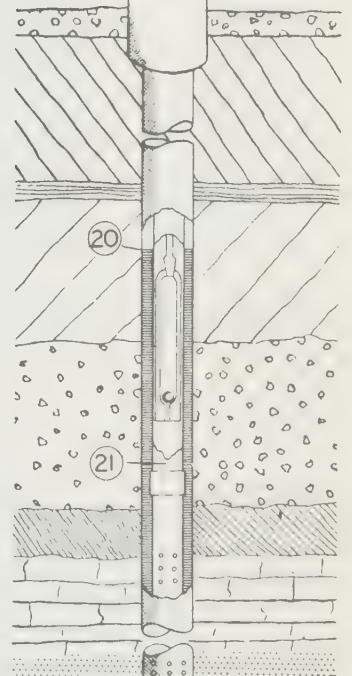
Gas wells and oil wells producing by natural energy usually have equipment designed to regulate and control the flow. This equipment, consisting of pipes, pressure gauges, valves and chokes, is known collectively as the Christmas tree. The Christmas tree is mounted on the wellhead and forms an integral part of it. The Christmas trees are also rated according to the maximum pressure which they are capable of withstanding. The more common types are designed for working pressures within the range of 900 to 15,000 p.s.i.

When the natural pressures underground are not adequate to bring the oil to the surface, artificial lift must be used. The equipment most commonly employed in pumping oil from the ground consists of a pump at the bottom of the well run by a string of rods attached to a pumping unit located at the surface. Although both hydraulic and pneumatic pumping units may be used to operate the pump, most of the pumping units used in Canada are of the familiar walking beam, horse-head type illustrated on the following page. In these, the rotary motion generated by the power plant, usually a gas engine or electric motor, is transformed into the up-and-down motion of the walking beam and of the horse-head. Suspended from the horse-head by means of a cable is a string of rods which connect the sub-surface pump with the pumping unit. The first of the rods is known as the polished rod; it is made of high-grade steel polished to a very close diameter tolerance. The polished surface and close tolerance are required to minimize wear and tear in the stuffing box through which the polished rod moves; the stuffing box is a chamber at the very top of a pumping well filled with compressed flexible material which seals off the pressures inside the tubing and prevents leakage of oil around the polished rod. The remaining rods of the rod string are known as sucker rods. They are also made of high-grade steel, range from $1\frac{1}{2}$ to $2\frac{3}{8}$ inches in outside diameter and come in lengths of 25 or 30 feet. Sucker rods less than 25 feet in length are called pony rods. Some sucker rods have threaded pins at one end and threaded boxes at the other by means of which they are joined together. Others have threaded pins at both ends in which case special threaded connectors, known as couplings, must be used to join them. The string of rods extends through the production tubing and joins with the plunger in the working chamber of the pump. Usually, the pump is set at a depth at which it will stay covered with the oil. During the pumping operation, valves in the pumping chamber and in the plunger open and close alternately, allowing the oil to pass into the chamber and from there to the surface through the plunger and the tubing.



Most of the essential main parts of the pumping unit are shown in the accompanying drawing. Although all units generally operate in the same way they are not exactly like each other because of design specifications.

- | | |
|----------------------------------|------------------------|
| 1. PRIME MOVER
OR POWER PLANT | 11. POLISHED ROD CLAMP |
| 2. GEAR REDUCER | 12. POLISHED ROD |
| 3. CRANK AND
COUNTER WEIGHT | 13. STUFFING BOX |
| 4. PITMAN | 14. TEE |
| 5. WALKING BEAM | 15. TUBING RING |
| 6. HORSE HEAD | 16. CASING HEAD |
| 7. COUNTER WEIGHT | 17. CASING STRINGS |
| 8. SAMPSON POST | 18. TUBING STRING |
| 9. BRIDLE | 19. SUCKER ROD |
| 10. CARRIER BAR | 20. FLUID LEVEL |
| | 21. ROD PUMP |



TRENDS IN THE PETROLEUM AND NATURAL GAS INDUSTRY

Output

Although petroleum and natural gas have been produced in Canada for many years⁽¹⁾, it was not until the discovery of the Leduc field in Alberta, on February 13, 1947, that Canada's petroleum and natural gas industry became an important factor in her economy. Since then, this industry's rate of growth has far exceeded that of any other major sector of Canada's economy. The table below gives an indication of the rate and scale of expansion in the petroleum and natural gas industry in recent years; further details are shown in Appendix B.

CANADIAN PRODUCTION OF CRUDE PETROLEUM AND NATURAL GAS
Cumulative to 1946 and Selected Years 1947 to 1961

Year	P E T R O L E U M			N A T U R A L G A S ^(a)		
	Western	Eastern	TOTAL	Western	Eastern	TOTAL
	Canada	Canada		Canada	Canada	
	Thousands of Barrels			Millions of Cubic Feet		
1886-1946	92,087	23,025	115,112	..	..	..
1947	7,538	154	7,692	44,381	8,276	52,657
1949	21,025	280	21,305	52,058	8,399	60,457
1951	47,403	213	47,616	70,756	8,705	79,461
1953	80,585	314	80,899	91,100	9,886	100,986
1955	128,902	538	129,440	139,733	11,039	150,772
1957	181,205	643	181,848	205,430	14,577	220,007
1959	183,762	1,016	184,778	400,378	16,957	417,335
1960	188,515	1,019	189,534	505,886	17,086	522,972
1961	219,687	1,161	220,848	641,098	14,640	655,738

(a) Net production only; does not include flared gas and other waste.

Source: Dominion Bureau of Statistics.

It is evident from the table that Canadian production of crude petroleum is now almost 30 times as great as it was at the time of the Leduc discovery, with the result that more petroleum is now produced in a single year than in all of the years prior to 1947 taken together. Indications are that Canadian production of petroleum is still increasing and is likely to continue doing so in the foreseeable future. For example, in the first half of 1962, the output of crude oil was running at a rate of about 660,000 barrels a day, or some 240 million barrels a year; the National Oil Policy calls for an output of 800,000 barrels a day, or just under 300 million barrels a year, by 1963.

⁽¹⁾ The first producing oil well in North America was drilled in Lambton County, Ontario, in 1858.

Although the increase in the production of natural gas has not been quite so spectacular, it has, nevertheless, been substantial. After deducting gas flared in the field and other waste, the volume of natural gas produced in 1961 was more than 12 times as great as in 1947. Much of this increase took place in recent years, due in part to an increase in exports from about 83 billion cubic feet in 1959 to 174 billion in 1961. Further increases in exports and in total output of natural gas are expected in the immediate future. For example, in 1962 exports are expected to reach 300 billion cubic feet, and total output about 900 billion cubic feet.

The preceding table also shows the regional impact of the growth in the petroleum and natural gas industry. In the period from 1947 to 1960, the Western Provinces, including the Northwest Territories, accounted for about 99.5 per cent of the increase in Canadian production of petroleum and for about 90 per cent of the increase in output of natural gas. Of the Western Provinces, Alberta is by far the largest producer of petroleum and natural gas. In 1961, this province accounted for 71 per cent of the total Canadian production of crude petroleum and for 76 per cent of the output of natural gas.

Drilling Activities

The Leduc discovery marked the beginning of an era of intensive drilling activity in Canada which, except for minor fluctuations, has continued unabated ever since. Footage drilled in exploration for, and in the development of, oil and gas wells increased rapidly from some 570,000 feet in 1946 to the peak of 15.8 million feet in 1956, the year of the Suez crisis. Since then, drilling activity has declined somewhat, although it continues to be higher than at any other time in Canada's history. The trends in footage drilled, its regional distribution and in drilling methods are shown in the following table; further details are given in Appendix B.

DRILLING IN CANADA^(a) Selected Years 1946 to 1960

<u>Year</u>	<u>Western Canada</u>		<u>Eastern Canada</u>		<u>TOTAL</u>
	<u>Rotary</u>	<u>Cable</u>	<u>Rotary</u>	<u>Cable</u>	
	T h o u s a n d s o f F e e t				
1946	297	17	-	258	572
1947	969	11	-	273	1,253
1949	3,210	12	-	315	3,536
1951	5,319	622	-	296	6,237
1953	10,111	266	28	360	10,765
1955	12,705	4	7	340	13,056
1956	15,408	5	16	372	15,801
1957	12,088	1	38	368	12,495
1958	12,958	169	40	277	13,444
1959	12,989	9	38	309	13,345
1960	13,496	11	43	220	13,770

(a) Contract drilling only; does not include the relatively small amounts of drilling done by oil and gas companies with own equipment.

Source: Dominion Bureau of Statistics.

The Western Provinces have accounted for practically all of the increase in drilling activity in recent years. Alberta has been the principal area of drilling activity in the West, accounting for about 70 per cent of the total footage drilled in Canada since 1946. Saskatchewan has been the next most active area and, in recent years, there has been increased drilling activity in British Columbia and in the Northwest Territories. In Eastern Canada, drilling for oil and natural gas has been confined chiefly to a relatively small area in south-western Ontario; drilling on a very small scale has also been carried out, from time to time, in Quebec and the Maritime Provinces.

It is apparent from the table above that most of the drilling in Western Canada is done by means of rotary drilling rigs. In Eastern Canada, on the other hand, cable-tool drilling is chiefly used. The difference in the methods used to drill is due largely to differences in the composition of the soil, in the depth at which the reservoirs of oil or gas occur, and in the size of the individual pools. The soils of the Western Canada Sedimentary Basin, in which practically all of the oil and natural gas deposits of Western Canada occur, are relatively soft with the reservoirs occurring at depths ranging anywhere from 1,500 to 15,000 feet and containing relatively large pools. Owing to its ability to drill fast and deep through soft or semi-hard formations, the rotary drilling rig is particularly suited for use in Western Canada; also, the relatively large yield obtainable from individual pools makes the use of expensive drilling equipment economical. The formations in Eastern Canada and the Maritimes are, on the whole, much harder, the reservoirs normally occur at depths not exceeding 5,000 feet and the yield per well is usually small. The relatively simple and inexpensive cable-tool rig is better suited for drilling under such conditions.

The table which follows shows for recent years the drilling activity in Western Canada in greater detail. In addition, the table reveals certain noteworthy trends in the types of wells being drilled and their average depth, in the type of drilling activity and in the average number of rigs used to drill.

DRILLING IN WESTERN CANADA, 1953 to 1961

<u>Year</u>	<u>Number of Wells</u>				<u>Footage Drilled</u>			<u>Number^(b) of Rigs Drilling No.</u>
	<u>Oil No.</u>	<u>Gas No.</u>	<u>Dry No.</u>	<u>TOTAL No.</u>	<u>Explo- ratory</u> Thousands of Feet	<u>Develop- ment</u> Thousands of Feet	<u>TOTAL</u> Thousands of Feet	
1953	1,218	201	820	2,239	3,797	5,343	9,140	174
1954	1,280	173	841	2,294	3,992	5,167	9,159	154
1955	1,957	168	810	2,935	3,978	8,738	12,716	194
1956	2,333	180	769	3,282	4,406	11,057	15,463	215
1957	1,852	194	954	3,000	4,974	9,035	14,009	209
1958	1,440	200	876	2,516	4,183	8,212	12,395	162
1959	1,404	302	833	2,568(a)	4,586	8,186	12,772	176
1960	1,481	292	717	2,536(a)	4,382	9,364	13,746	176
1961	1,381	392	681	2,512(a)	4,274	9,477	13,751	156

(a) Includes service wells.

(b) The average of rigs actually drilling in March, June, September and December of each year.

Source: Canadian Petroleum Association.

The table shows that in recent years some noteworthy changes have taken place in the average depth of wells being drilled and in the average productivity of drilling rigs; these changes are summarized below:

	<u>1953</u> feet	<u>1957</u> feet	<u>1961</u> feet
Average depth of wells	4,080	4,670	5,470
Average annual footage per drilling rig	52,500	67,000	88,000

The marked increases in the average depth of wells and in the average annual footage per drilling rig are due partly to the shift of drilling activity to areas where deeper wells are required to reach the oil or gas reservoirs, and partly to an increase in efficiency of drilling rigs resulting from improvements in equipment and techniques.

Most of the drilling in Canada is done on a contract basis by firms which specialize in drilling. Some of the oil and gas companies own and operate drilling rigs; however the amount of drilling undertaken by them is small in relation to the activities of the drilling contractors.

The following table gives the principal statistics of firms engaged in drilling for oil and natural gas. In 1960, 71 of the 94 firms were located in the Western Provinces, 65 of which were in the Province of Alberta. Together, the 71 Western firms accounted for about 97 per cent of the gross income received and of the wages and salaries paid by Canadian drilling contractors in 1960. Further details are given in Appendix B.

PRINCIPAL STATISTICS OF FIRMS ENGAGED IN CONTRACT DRILLING
Selected Years 1946 to 1960

<u>Year</u>	<u>Number of</u>		<u>Number of Rigs</u>		<u>Salaries and Wages</u> \$'000	<u>Gross Income</u> \$'000
	<u>Firms</u> No.	<u>Employees</u> No.	<u>Rotary</u> No.	<u>Cable</u> No.		
1946	56	485	..	..	820	2,536
1947	62	1,020	..	..	2,064	7,484
1949	84	2,039	..	..	6,294	23,720
1951	101	3,620	181	79	13,050	42,988
1953	140	4,903	299	106	19,849	59,663
1955	117	4,901	296	73	22,328	68,349
1956	118	5,793	344	70	28,834	93,257
1957	115	5,468	328	71	25,745	75,633
1958	105	5,261	333	62	28,080	69,345
1959	109	4,734	342	69	21,423	63,816
1960	94	4,860	352	46	23,157	75,241

Source: Dominion Bureau of Statistics.

As can be expected, the principal statistics of the firms engaged in contract drilling follow closely the trends in drilling activity. Thus, gross income, employment, salaries and wages all rose to a peak in 1956 - the year of the most intensive drilling activity in Canada - and then declined in the subsequent years as drilling activity contracted.

Figures published by the Canadian Association of Oilwell Drilling Contractors, whose members operate most of the rotary drilling rigs in Canada, indicate the existence of excess drilling capacity. The figures show that during 1961 members of the Association owned some 300 rigs of which about 100, on the average, were idle throughout the year; however, it is understood that about 20 per cent of the 300 rigs are no longer capable of operating. Even so, it is evident that excess drilling capacity does exist in Western Canada at the present time.

Processing of Natural Gas

The rapid increase in the production of natural gas necessitated an expansion in processing facilities. Much of the natural gas found in Western Canada contains substantial quantities of hydrogen sulphide and of various hydrocarbons which have to be removed before the gas is acceptable for transmission by pipe-line. The methods and the equipment used in processing natural gas are described in greater detail in the section dealing with the Canadian market for oilfield equipment.

The number of gas processing plants in Western Canada increased from eight in 1955 to about 70 at the end of 1961, with four more scheduled for completion in 1962; five of the existing plants are in Saskatchewan, two in British Columbia and the remainder in Alberta.

The plants in existence at the end of 1961 represented an investment of well over \$150 million and had a capacity to process just over one trillion cubic feet of raw gas annually. The four new plants scheduled for completion in 1962 will cost an estimated \$32 million and will increase total processing capacity in Western Canada by about 180 billion cubic feet a year. With production of natural gas in Canada expected to approach one trillion cubic feet in 1962 and with further increases envisaged, it is reasonable to expect that gas processing facilities will be further expanded; however, it is unlikely that the spectacular rate of expansion which occurred in recent years will be repeated.

CANADIAN MANUFACTURE OF OILFIELD EQUIPMENT

Unlike some countries, Canada has no substantial industry devoted solely to the production of a full range of machinery and equipment for the petroleum and natural gas industry. Rather, whatever machinery and equipment of this type is produced in Canada, is made by firms which fall into two separate categories: those that produce some of the specialized types of equipment used only in the petroleum and natural gas industry and those that manufacture equipment which, apart from its use in the petroleum and natural gas industry, has other applications as well. The firms in the first category, moreover, can be considered in two groups: those which specialize to a great extent in the manufacture of machinery and equipment for the oil and gas industry, and those which make the specialized equipment along with that used for other purposes.

Most of the firms which produce some of the specialized types of equipment required by the petroleum and natural gas industry are located in Western Canada, chiefly in Calgary and Edmonton. A number of these firms made a joint submission to the Board in which they described their history and the scope of their activities as follows:

" Immediately following the Leduc discovery, and building on the need for the many items entirely peculiar to the oil and gas industry, a number of small fabricating and supply companies formed and matured quickly in Western Canada. The inability of American companies to supply them, because of world-wide demand, allowed newly-formed Canadian companies to begin, for the most part, restricted production of such items as controls and valves, paraffin scrapers, subs, storage tanks, special truck and vehicle chassis, scratchers, fluid circulating pumps, portable rigs, casing, tubing, welded fittings, centralizers, and sucker rods. Many of these companies exist today, and, although hindered somewhat in growth by American competition, most of them have reached a degree of maturity which marks them as important to the economy of the Province [of Alberta] and thus to Canada."(1)

At present, there are in the Province of Alberta between 20 and 30 firms whose major field of activity is the production of some of the specialized types of equipment for the petroleum and natural gas industry; included with these are two firms which mine and process bentonite and barite for use in drilling mud. Most of the Alberta firms have come into existence since 1947 and are relatively small, with each producing only a very limited range of the specialized pieces of equipment. Some of these firms are subsidiaries of firms in the United States and manufacture under the parent companies' brand names; they may also distribute some of the specialized items

(1) Proceedings (Official Report) at the Public Hearing on Reference 130 (henceforth cited as Proceedings), May 23, 1961, p. 30.

produced by the parent companies in the United States, which they themselves do not manufacture in Canada. Some of the other firms have entered into, or are negotiating, licensing agreements with oilfield equipment manufacturers in the United States which would enable them to use their designs and brand names. Finally, there are those which produce items in the marketing of which design and brand name preferences are not of primary importance.

In addition to the firms which depend on the petroleum and natural gas industry for much of their sales, there is about an equal number of firms for whom the manufacture of specialized oilfield equipment does not constitute a major field of endeavour. Included in this group is a number of foundries and metal forging and fabricating plants; some of these make the finished pieces of equipment, others supply the castings or forgings for them. Most of these firms are also located in Western Canada, principally in Calgary or Edmonton.

The types of equipment which, apart from their use in the petroleum and natural gas industry, have also other applications include, for example, pumps, tanks and pressure vessels, heat exchangers, compressors, motive power including electrical motors, rubber goods such as belts and hose, and a variety of measuring, indicating and recording devices. For the most part, the firms manufacturing these various types of machinery and equipment are relatively large and well-established. They are located or conduct their major manufacturing operations in Eastern Canada, particularly in Quebec and Ontario. Because of the large number of firms involved and the fact that the products which they manufacture have multiple uses, it is impossible to say what the employment or the proportion of output devoted to the manufacture of equipment destined for the petroleum and natural gas industry actually is. In response to an inquiry by the Board subsequent to the public hearing, a representative of the Machinery & Equipment Manufacturers' Association of Canada, whose members are said to account for about 70 per cent of the general purpose machinery made in Canada, described the extent of his members' interest as follows:

" Our survey shows that none of our members are presently manufacturing machinery and apparatus that is peculiar to the gas and oil-well drilling industry. With no tariff protection there has been little incentive for our members to take up the manufacture of such machinery and apparatus.

" The logical place to manufacture such machinery and apparatus is in Alberta....

" Our interest is with respect of machinery and apparatus that is now made in Canada, that is not peculiar to the gas and oil-welling industry but is used by them and imported under items 848 and 848a."

It would thus appear that members of this group are not currently engaged in the manufacture of the specialized types of machinery and equipment required by the petroleum and natural gas industry; they do, however, supply a significant portion of the non-specialized equipment, such as that used in processing natural gas.

SUMMARY OF PROPOSALS AND REPRESENTATIONS

In the course of the public hearings at Calgary and Ottawa, the Board received, in all, some 23 representations. The consensus of these representations was that oilfield equipment of the type manufactured in Canada was entitled to receive a measure of tariff protection. There was, however, a difference of opinion as to the appropriate level of such tariff protection and as to the means used to accord it. The manufacturers, generally, favoured an imposition of duties on the types of equipment ruled to be of a class or kind made in Canada and continued free entry for those that are not, such rulings to be made by the Department of National Revenue in accordance with the provisions of the Customs Tariff. The users, on the other hand, expressed a preference for a tariff item specifically enumerating the types of equipment entitled to protection, with changes in the coverage of the item being made by statutory amendment.

The three principal submissions relating to general classification of oilfield equipment are summarized below; most of the other representations dealt with specific items of equipment, such as belts and hose, diamond bits, heat exchangers, electrical equipment and indicating instruments, and only a few related to oilfield equipment in general.

Group of Canadian Manufacturers of Oilfield Equipment

This Group includes most of the Canadian firms engaged in the manufacture of specialized items of oilfield equipment for the petroleum and natural gas industry. Their background and activities are outlined in the section entitled "Canadian Manufacture of Oilfield Equipment". The Group proposed that tariff items 848 and 848b be subdivided, with rates of 5 p.c. British preferential, 10 p.c. most-favoured-nation and 20 p.c. under the General Tariff applicable to machinery, apparatus and materials that are of a class or kind made in Canada, and continued free entry for those that are not. The Group also proposed the deletion of sucker rods, pony rods, polished rods and couplings therefor and of seismograph drilling bits from item 399a, and the elimination of all reference to oil and natural gas usage from items 410d and 410e. Thus, under this proposal, all oilfield equipment would be entered under one of the two proposed subdivisions to item 848, and all materials for the manufacture of such equipment under one of the two proposed subdivisions to item 848b.

In their submission, the Group of Canadian Manufacturers of Oilfield Equipment gave the following reasons for their need of tariff protection under tariff items 848 and 848b:

1. Exposure to highly efficient U.S. industry with surplus capacity.

2. The existence in Canada of a preponderance of American oil companies and oil drillers who have a preference for known, American brand name products.
3. The domination of the oilfield supply business by American oil supply stores which, in turn, are controlled by manufacturers of oilfield equipment in the United States. This makes it difficult for a Canadian company to break into the oilfield supply and distribution system without a price advantage over the American manufacturer.⁽¹⁾

When asked to comment on the adequacy of the 10 p.c. most-favoured-nation rate of duty on the type of oilfield equipment manufactured in Canada, the spokesman for the Group stated as follows:

"... if it is impossible to manufacture an item in Canada for the oil industry with 10% tariff protection ... that item should not be logically made in Canada and probably should be stricken from our list under consideration. Only those items that fall within what we might call the economical group for the Canadian manufacturer should be considered...."⁽²⁾

Commenting further on the expected benefits of a 10 p.c. most-favoured-nation tariff, the same spokesman said that it would enable the domestic manufacturer to obtain a sufficiently large volume so that the Canadian-manufactured product could be sold at a price comparable to that prevailing in the United States.⁽³⁾

In support of the proposal that the same tariff treatment ought to be accorded to materials as is accorded to finished equipment and parts, the Group of Canadian Manufacturers of Oilfield Equipment argued that this would maintain equality of protection as between the Canadian suppliers of raw materials and their users. Furthermore, the Group claimed that there were certain raw materials which were not at present available in Canada and that these were readily identifiable as being usable only for the manufacture of oilfield equipment.⁽⁴⁾

The proposal that protection ought to be granted by the Department of National Revenue on the basis of a class or kind made in Canada ruling, rather than by statutory amendments to the Customs Tariff, was justified by a spokesman for the Group as follows:

" It is suggested that the creation of nominal tariffs by individual statutory ruling would destroy the effectiveness of the intended protection of Canadian secondary industry for oilfield items because of the time-consuming details required to make the necessary changes. A change of status by ruling of the Minister of National Revenue after necessary information as to quantity produced and Canadian content have been furnished

(1) Proceedings, May 23, 1961, pp. 42-3.

(2) Ibid., p. 89.

(3) Ibid., p. 86.

(4) Ibid., p. 45

appears to be the simple, streamlined system which would over the long term gain the ends which we all seek -- increased production of Canadian goods, without placing a financial burden on the oil and gas producing industry of which we are all a part."⁽¹⁾

The Group also proposed that the wording of tariff item 410b be changed to mention specifically natural gas among the end-uses, and to include automatic pilot control valves or regulators among the parts allowed under the item.

Machinery & Equipment Manufacturers' Association of Canada

As of January 1961, this Association represented 20 firms which, together, were said to account for about 70 per cent of all the machinery and industrial equipment manufactured in Canada; members of the Association have their manufacturing facilities located chiefly in Eastern Canada, particularly in Quebec and Ontario.

The Association proposed that the portion of tariff item 399a providing for goods under review in this reference be deleted and that tariff items 848 and 848b be subdivided, with rates of 5 p.c. British preferential, 10 p.c. most-favoured-nation and 20 p.c. general for those goods which are of a class or kind made in Canada, and continued free entry under all three Tariffs for those that are not. In support of this proposal, the Association stated:

" Inasmuch as a considerable volume of the goods presently imported free of duty under this item could and should be made in Canada, and as item 848a is qualified by the words 'of a class or kind not made in Canada', we see no reason why item 848 should not be similarly qualified."⁽²⁾

With respect to item 410b, the Association proposed that its wording be amended so as to exclude machinery and apparatus for use in natural gas processing plants; the equipment would then be entered at higher rates of duty under tariff items normally applicable to this equipment, such as item 446a which provides rates of 10 p.c. and 22½ p.c. under the British Preferential and Most-Favoured-Nation Tariffs, respectively. The following reason was given by the Association for the proposed exclusion of natural gas processing equipment from item 410b.

" We contend that when item 410b was introduced in 1930 that for all practical purposes there was no natural gas industry and that the intent of the item was to give assistance to coal mines and to plants manufacturing coke and gas in respect of machinery and apparatus that was not available in Canada."⁽³⁾

(1) Proceedings, May 23, 1961, p. 69.

(2) Ibid., June 5, 1961, p. 588.

(3) Ibid., p. 583.

The Association also proposed that item 410d be amended by deleting from it all reference to oil or natural gas and that item 410e be deleted in its entirety. Whatever oilfield equipment now enters under items 410d and 410e would become classifiable under one of the proposed subdivisions to item 848. The proposal with respect to item 410d was based on the grounds that the oilfield equipment entitled to entry under it is already provided for in tariff item 848. The proposed deletion of item 410e was based on the grounds that "all of the rope mentioned in this item is in fact made in Canada."(1)

Canadian Petroleum Association

Canadian Association of Oilwell Drilling Contractors

The Canadian Petroleum Association consists of firms engaged in exploratory drilling and in the production of petroleum and natural gas; it also includes a number of supply, servicing and transportation or transmission companies. Together, members of the Association account for about 97 per cent of the oil and natural gas produced in Canada.

The Canadian Association of Oilwell Drilling Contractors, which supported the Canadian Petroleum Association's submission, represented in mid-1961 some 45 drilling contractors owning 292 drilling rigs; there was a total of 303 drilling rigs reported in Western Canada at that time.

Canadian Petroleum Association proposed that goods of a class or kind made in Canada be specifically provided for in a tariff item, such as item 399a, and that those not made in Canada continue to be entered duty-free under item 848.

With respect to tariff item 410b, the Canadian Petroleum Association proposed an amendment of the wording designed to ensure that machinery and apparatus for use in natural gas processing plants would continue to be classified under it. In support of this proposal, the Association stated:

" Government interpretation by the Department of National Revenue has established that this provision is intended to apply to machinery and equipment for use in all natural gas processing plants, however, we would suggest, for clarification, that the words 'coal or coke gas and natural gas' be included immediately following the reference to coal tar. Further we do not suggest or subscribe to any increase in duty over the present 10%. In our opinion this should give adequate competitive protection to Canadian manufacturers if they are manufacturing products of a like quality."(2)

(1) Proceedings, June 5, 1961, p. 586.

(2) Ibid., May 24, 1961, p. 190.

CANADIAN MARKET FOR OILFIELD EQUIPMENT

There are no figures available respecting total Canadian production of the oilfield equipment under review in this volume; consequently, the size of the total Canadian market for such equipment cannot be exactly ascertained. The difficulty in estimating total Canadian production is due partly to the multiplicity of products, some of which are highly specialized while others have many uses, and partly to the fact that the firms manufacturing them belong to many different industries.

However, it is known that total imports of the machinery and equipment considered in this volume fluctuate between \$40 million and \$60 million annually, and that they consist chiefly of drilling and wellhead equipment. Canadian production of drilling and wellhead equipment is known to be negligible and, consequently, the imports must supply most of the Canadian market. On the other hand, there is evidence that Canadian manufacturers have been supplying a substantial and increasing portion of the equipment used in natural gas processing plants; imports of this type of equipment have been under \$7 million annually. With respect to the extraction of oil from shales and sands, up to now this has been in the experimental stage, but with the forthcoming commencement of commercial production of oil from the Athabasca tar sands there may be substantial requirements for equipment for this purpose in the future. Further details concerning the Canadian markets for drilling and wellhead equipment, natural gas processing equipment, and the equipment for extracting oil from shales and sands are given below.

Drilling and Wellhead Equipment

Under this heading is considered all of the oilfield equipment other than that used in processing natural gas and in extracting oil from shales and sands, and other than drill pipe and oil-country goods. As noted at the beginning of this volume of the Report, the last two categories of oilfield equipment are not under review in this study, being provided for in tariff items or parts of items which are not included in Reference 130.

The drilling and wellhead equipment are normally entered under tariff item 848, with the exception of sucker rods, pony rods, polished rods and couplings for them, and seismograph drilling bits, all of which are specifically provided for in tariff item 399a. Some drilling equipment may also be imported under tariff items 410d, 410e or 848a; imports under these items are believed to be small.

Evidence placed before the Board in the course of the inquiry indicates that only a small portion of the total Canadian requirements for drilling and wellhead equipment is supplied from domestic sources. For example, the submission on behalf of the Group of Canadian Manufacturers of Oilfield Equipment, consisting chiefly of the Alberta firms which together account for most of the specialized drilling and wellhead equipment produced in Canada, contained the following:

" It was brought before the Tariff Board at the hearings held in Calgary, that the items classified under Tariff Item 848, which now enter Canada free of duty, involve a large number of specific pieces of equipment. This group of oil-field equipment manufacturers recognizes the fact that the majority of these items of equipment are not presently manufactured in Canada."(1)

A spokesman for the same group, which hereinafter is referred to as the Group of Canadian Manufacturers, testified further:

" Very little oil-field equipment which presently comes under item 848, or some of those items which have in the last few years been moved over to item 399a -- very few of those items are made in Canada."(2)

It follows from the above that most of the Canadian market for drilling and wellhead equipment is being supplied by imports. The value of imported drilling and wellhead equipment in recent years is shown in the following table; further details are given in Appendix B.

IMPORTS OF DRILLING AND WELLHEAD EQUIPMENT^(a)

<u>Year</u>	<u>United States</u> \$'000	<u>Other</u> \$'000	<u>TOTAL</u> \$'000
1939	2,098	47	2,145
1947	6,883	171	7,054
1948	15,389	-	15,389
1949	23,917	-	23,917
1950	20,748	34	20,782
1951	37,105	270	37,375
1952	43,029	449	43,478
1953	33,565	180	33,745
1954	30,767	363	31,130
1955	44,191	628	44,819
1956	72,388	898	73,286
1957	50,502	1,145	51,647
1958	37,017	409	37,426
1959	37,957	347	38,304
1960	35,356	478	35,834
1961	34,181	472	34,653

(a) Statistical class 5482. Includes imports under tariff items 410d, 848, 848a, 848b, and the seismograph drilling bits entered under item 399a. Does not include imports of wire rope and, beginning in 1960, of drilling mud and additives.

Source: Dominion Bureau of Statistics.

(1) Proceedings, June 5, 1961, p. 567.

(2) Ibid., p. 901.

The imports shown in the table above include most of the drilling and wellhead equipment under review in this volume; most of these are entered under tariff item 848. The value of imports has fluctuated widely, rising from \$7 million in 1947 to \$73 million in 1956 and then declining again to a level of about \$35 million annually in recent years. A comparison with the figures of footage drilled, which were given previously, will show that imports of drilling and wellhead equipment follow the trends in drilling activity. Most of the imports are from the United States; in recent years, some 99 per cent of the imports originated in that country. Following closely the regional pattern of the petroleum and natural gas industry, a substantial portion of the imports is destined for Alberta. The table in Appendix B showing imports by province of entry indicates that in the period 1955 to 1960 about 77 per cent of the imports were cleared through Alberta ports of entry, and it is likely that some of the imports cleared through ports in other provinces were for eventual use in Alberta.

The Department of Trade and Commerce has prepared a detailed break-down of the imports of drilling and wellhead equipment during the calendar year 1960, based on an examination of customs invoices valued at \$1,000 and over. The results are summarized in the following table:

SAMPLE OF IMPORTS OF DRILLING AND WELLHEAD EQUIPMENT,
BY PRINCIPAL CATEGORIES, 1960

	<u>\$1,000</u>
1. Geophysical prospecting equipment	372
2. Drilling rigs and parts	10,225
3. Drill bits and parts	10,884
4. Ancillary drilling equipment	1,514
5. Well logging equipment	755
6. Cementing equipment	726
7. Well treating and servicing equipment	248
8. Wellhead completion equipment	1,563
9. Fittings	254
10. Valves and parts	1,256
11. Production pumps and parts	2,405
12. Oil and gas treating equipment	420
13. Storage tanks and parts	518
14. Electrical and electronic equipment	56
15. Indicating, measuring and recording instruments	<u>174</u>
TOTAL SAMPLE	31,370
TOTAL IMPORTS	35,834

Source: Based on Table IV in Spotlight on Oil Drilling Equipment, Queen's Printer, Ottawa, 1961. This publication also contains a break-down of imports by individual items of equipment, pp. 41-65.

It will be noted that drill bits and drill bit parts represent, by value, the largest single category of drilling and wellhead equipment imported into Canada. The Canadian markets for the various categories of equipment listed in the above table are discussed in greater detail in the following subsections.

1. Geophysical Prospecting Equipment

Much of this equipment has, in addition to its use in prospecting for oil and natural gas, other uses as well, including prospecting for minerals and in geophysical studies for engineering projects; consequently, the size of the market for geophysical prospecting equipment which is provided by the petroleum and natural gas industry alone is difficult to determine. Moreover, although there are a number of firms in Canada which sell geophysical prospecting instruments, the Board received no representations from these firms, nor from the users of such equipment. The lack of any representations is, no doubt, attributable chiefly to the fact that equipment for use in prospecting for petroleum and natural gas is specifically provided for in tariff item 43lh, which is not before the Board in this reference. Although there are some imports of geophysical prospecting equipment under the tariff items considered in this reference, most of such equipment appears to be entered under tariff item 43lh.

2. Drilling Rigs and Parts

Complete rotary drilling rigs are not manufactured in Canada. Imports of complete rigs fluctuate widely from year to year, and, recently, declined substantially. For example, during the three years 1955 to 1957 at least 52 drilling rigs were put into operation in Canada. It is understood that very few new rotary drilling rigs have been sold in Canada since. The decline in the number of new rotary drilling rigs purchased by Canadian drillers is, no doubt, due to the fact that at the present level of drilling activity, the number of drilling rigs available in Canada exceeds the number actually required for drilling. It would appear that most of the rigs imported in recent years were of the portable, truck-mounted type used in well servicing and well work-over. These are much less complex and usually less expensive than the rigs used in drilling. In addition, used rigs are sometimes brought into Canada from the United States for specific operations. Their value is included in import statistics even though some of them are returned after the drilling is completed. No information has been made available to the Board respecting the number and value of such rigs, the extent of their use and their final disposition.

Imports of the various parts and components of drilling rigs account for most of the drilling equipment imported into Canada. Evidence available to the Board indicates that most of these parts and components are not made in Canada at the present time, nor are they likely to be made. Included in this category are the following major items:

masts or derricks, crown and traveling blocks, swivels, rotary tables, draw-works, blow-out preventers, slush pumps and the various types of motive power, including the drive groups required to distribute it.

While most of the large, durable components of drilling rigs are not manufactured in Canada, some of the smaller, expendable items are. Included among these are: drilling mud and additives, rubber belts and hose, wire rope, and shale shaker screens. The drilling mud, although not a part of the drilling rig in the strict sense, nevertheless plays an important part in the mud system which is an integral part of the rig; it is, therefore, included in this subsection.

Drilling Mud - In order to obtain a general indication of the type, quantity and value of drilling mud and additives used in drilling for oil and natural gas, the Board asked the Canadian Petroleum Association to prepare an estimate of Canadian consumption based, as far as possible, on actual purchases by its members. The estimate follows:

ESTIMATED CANADIAN ANNUAL CONSUMPTION OF MUD AND ADDITIVES

<u>Product</u>	<u>Quantity</u> Tons	<u>Value</u> \$'000
*Bentonite	20,000	1,000
*Barium sulphate	7,500	412
Starch	800	275
Barium carbonate	600	150
*Caustic soda	600	150
Quebracho	250	135
Lignosulphonates	350	115
Special compounds (invert emulsions, oil bases, etc.)	250	100
*Lignin	350	80
Paraformaldehydes	75	80
*Fibrous material	225	62
Cellulose	30	60
*Sawdust and other wood products	1,200	50
*Sodium carbonate	200	30
Sodium bicarbonate	100	20
Acrophilates	10	15
*Lime	250	15
*Mica	50	15
*Plaster of Paris	250	15
*Cello seal	15	10
Tall oil and derivatives	25	8
Miscellaneous products	<u>150</u>	<u>35</u>
TOTAL	33,280	2,832

* Available from Canadian production.

Source: Canadian Petroleum Association.

It will be noted that the two basic mud materials, namely bentonite and barium sulphate, account for just under one-half of the total estimated value of mud and additives consumed in Canada. The two basic mud materials are mined and processed in Canada by Baroid of Canada, Ltd. and Magnet Cove Barium Corporation Ltd., both of Calgary. The two Canadian producers were not present at the public hearings, nor did they make any representations. Published price lists show that the prices of Canadian bentonite are, as a rule, below those of the imported material. In some locations, they are as much as 18 per cent lower. Statistics of imports, shown in Appendix B, indicate that bentonite is imported in substantial quantities. The continuation of imports, despite of the availability of lower-priced domestic product, is said to be attributable to factors which are discussed in detail in the section entitled "Factors Affecting Competition in the Canadian Market".

The other additives include a great variety of products, including various chemicals and coarse fibres. In the table, such products account for about \$1.4 million of the annual total; of these only about \$400,000 worth, or about one-third is obtainable from Canadian sources. When questioned about the possibility of increasing the manufacture of drilling mud additives in Canada, a spokesman for Canadian Association of Oilwell Drilling Contractors expressed the following opinion:

"Mr. Chairman, my personal opinion on that is [that] most of our drilling muds and added mixtures that go into making up drilling fluid could be produced in Canada."(1)

Belts and Hose - There is a variety of rubber belts and hose used on a drilling rig and on the ancillary equipment connected with it. Most of the belts are of the transmission type and are used to connect the primary source of power with the various components of the drilling rig, such as the slush pumps, and with ancillary motors, generators or pumps. The rotary hose used to bring the mud from the stand-pipe to the swivel is the primary example of the use of hose on a drilling rig. Hose is also used to deliver the mud from the slush pumps to the stand-pipe, to bring and discharge water from the mud tanks, and to channel steam or air for a variety of miscellaneous purposes around the rig. The rotary hose and the hose used to connect the slush pumps with the stand-pipe are specially designed for use on the drilling rig. The other types of hose and the transmission belts are of a type used for other purposes as well although, at times, their construction may be modified to meet the special operating conditions found on a drilling rig.

The Rubber Association of Canada, representing the Canadian manufacturers of rubber belts and hose, estimated the total Canadian market for belts and hose for use in drilling for oil and natural gas at between \$400,000 and \$500,000; of this, about 60 per cent consists of hose and the remaining 40 per cent of belts, chiefly V-belts. The Association also estimated that, at present, about 50 per cent of the

(1) Proceedings, May 24, 1961, p. 261.

hose and 30 per cent of the V-belts used in drilling for oil and natural gas are supplied by imports.

At the request of the Board, an estimate of the total Canadian market for rubber belts and hose used in drilling for oil and natural gas was also prepared by the Group of Canadian Manufacturers. This placed the total value of the Canadian market for belts and hose at about \$1 million of which about one-half was estimated to be supplied from Canadian production. From confidential information obtained by the Board from the Rubber Association subsequent to the public hearing it would appear that the value of the rubber hose and belts for use in drilling for oil and natural gas lies somewhere between the two estimates referred to above.

Available evidence indicates that the Canadian manufacturers are able to supply virtually all of the types of belts and hose required by the petroleum and natural gas industry. This fact was confirmed by a spokesman for the Canadian Petroleum Association.⁽¹⁾ There are, nevertheless, significant importations. No reasons were given respecting these imports in particular. However, it would appear that, as in the case of bentonite and of certain other types of oilfield equipment manufactured in Canada, the market for belts and hose is affected by considerations other than those of price, quality and availability; such other considerations are discussed in the following section.

Wire Rope - The wire rope is used on the drilling rig for a variety of purposes. The principal of these is to serve as the rotary drilling line; this is the cable which connects the draw-works with the traveling block, and is used to lift and lower the drilling string. The wire rope used for this purpose is usually about 5,000 feet in length and from one inch to one inch and a half in diameter. Wire rope is also used on the drilling rig to operate various ancillary equipment such as the tongs, to lower and hoist the bailer or sand pump used in cleaning the drill hole, and to lower casing and tubing.

Total consumption of wire rope in drilling for oil and natural gas is estimated at about \$500,000 of which about 80 per cent is supplied from domestic production. There are known to be at least four manufacturers of this type of rope in Eastern Canada and one in Western Canada. All available evidence indicates that wire rope is made in Canada in all the sizes required by the petroleum and natural gas industry.

Wire Screens - These are the screens used on the shale shaker to remove sand and other coarse materials from the drilling mud. More technically, they are known as the vibrating shale shaker screens or, simply, mud screens. The screens wear out during the operation;

(1) Proceedings, June 6, 1961, p. 741.

an average shale shaker is said to use several hundred of these during its life time. The screens are usually made of stainless steel wire and range in price from \$30 to \$50.

The wire screens for shale shakers are, at present, manufactured in Canada only by Donald Ropes & Wire Cloth Limited, of Hamilton, Ontario, although it is understood that there are two or three other firms also capable of manufacturing them. There are two principal manufacturers in the United States, both of whom also manufacture the shale shakers themselves. The screens manufactured by Donald Ropes are designed to fit the equipment made by the manufacturers in the United States; a spokesman for Donald Ropes testified that his firm was equipped to supply all types and sizes of mud screens required by the industry.

In their submission to the Board, Donald Ropes & Wire Cloth Limited had this to say about the Canadian market for mud screens:

" We do not have satisfactory statistics on the exact value of imports of this type of screen, nor are they available from the Dominion Bureau of Statistics. However, we estimate the total market to be worth some \$80,000.00 or \$90,000.00 per annum, and, as already stated, we have been able to obtain only about 25 per cent of this market....

"... This is due to our inability to compete with imports of United States manufacturers whose costs are much below ours due to their large volume of production."(1)

Evidence from two supply companies respecting their purchases of mud screens was placed before the Board at the public hearing. The first, from Oil Equipment Ltd., of Calgary, Alberta, was as follows:

" Regarding shale shaker screens I find that 90 per cent of our sales are Donald screens which are made in Canada, the balance being made by the Link Belt or Rumba, both of which are manufactured in the United States."(2)

The other, from the Oil Well Supply Division of the United States Steel Corporation, Calgary, Alberta, read:

(1) Proceedings, June 6, 1961, p. 799.

(2) Ibid., p. 805.

" Our Shale Shaker Screens are purchased from Pacific Northwest Imports in Edmonton and are offered on a competitive basis with Donald Screens. We attempted to stock Donald Screens, but could not make satisfactory arrangements with this source since they offer their drilling lines exclusively through one of our competitors."(1)

3. Drill Bits and Parts

The Canadian market for roller cone bits is estimated at between \$11 million and \$12 million annually. At present, more than 95 per cent of the total market is supplied by imports; in terms of value, the roller cone bits represent by far the largest single category of drilling equipment imported into Canada. A sample survey of imports during August, 1960 showed that of the roller cone bits which could be identified as to size and quantity imported, some 68 per cent were accounted for by the following four sizes: $4\frac{1}{2}$, 7-7/8, $8\frac{3}{4}$ and 9 inches. Most of the imported roller cone bits come from the United States and are made by Hughes Tool Company, of Houston, Texas, the largest manufacturer of roller cone bits in the world.

Canadian production of roller cone bits is, at present, confined to the seismograph drilling bits of the type and in the sizes specified in tariff item 399a. It is estimated that the seismograph drilling bits account for about 5 per cent of the total Canadian market for roller cone bits, or between \$550,000 and \$600,000 annually; of this, at least 50 per cent is supplied from domestic production.

A considerable amount of evidence was received in the course of the inquiry respecting the possibility of manufacture in Canada of roller cone bits other than those used in seismic exploration. Most of such evidence pointed to the conclusion that the manufacture in Canada of a full range of roller cone bits required in drilling for oil and natural gas would be uneconomical. The principal factors mentioned were:

- a) The small size of the Canadian market, which would tend to make per unit costs in Canada higher than those in other countries. Spokesman for the Canadian Association of Oil-well Drilling Contractors noted, for example, that there were ten times as many drilling rigs in the United States as there were in Canada.(2)
- b) The great variety required by the Canadian market, necessitating large outlays for tooling. The representative of Hughes Tool Company, of Houston, Texas, which at present supplies most of the roller cone bits used in Canada, testified that there were 430 different types and sizes of rock bits used in Canada during 1960.(3)

(1) Proceedings, June 6, 1961, p. 805.

(2) Ibid., May 24, 1961, p. 214.

(3) Ibid., June 7, 1961, pp. 871-2.

- c) Frequent changes in the design of even the more common types and sizes of rock bits which, according to testimony received, may involve new tooling costs amounting to thousands of dollars annually.⁽¹⁾
- d) The fact that the driller has come to expect from the drill bit manufacturer technical advice as well as service and engineering facilities to deal with any problems that he may encounter. The provision and maintenance of such facilities places an additional overhead burden on the manufacturer.
- e) The fact that most of the rock bits currently used in Canada are protected by patents.⁽²⁾

There is no doubt that it would be uneconomical to attempt to produce in Canada the full range of roller cone bits required in drilling for oil and natural gas. On the other hand, there is no economic reason why some of the more popular sizes of rock bits could not be manufactured in Canada, especially if arrangements could be made with established manufacturers in other countries for the pooling of technical resources and know-how. In this connection, it is of interest to note that recently the Reed Roller Bit Co., of Houston, Texas, announced plans to manufacture oilwell drilling bits in Canada. It has also been reported that a group of Canadian drilling contractors is negotiating with Hughes Tool Company for the manufacture of Hughes bits in Canada under a licensing agreement.

The Canadian market for diamond bits for use in drilling for oil or natural gas appears to fluctuate considerably from year to year. It is estimated that in 1960 the total market was valued at about \$1 million and that a little less than one-half of it was supplied from domestic sources. There are in Canada at least five firms engaged in the manufacture of diamond drill bits for the petroleum and natural gas industry. All of these firms also make diamond bits for use in mining, which account for some 90 per cent of all the diamond bits manufactured in Canada. The diamond bits used in mining are generally smaller and, consequently, less expensive; they are discussed in greater detail in the second volume of this Report, dealing with mining equipment.

When questioned about the availability of diamond drill bits in Canada, a spokesman for the Canadian Petroleum Association testified as follows:

"I would comment to the effect, sir, that diamond bits, as far as we in the oil industry are concerned, are manufactured in sufficient quantities in Canada now to supply the industry."⁽³⁾

(1) Proceedings, June 7, 1961, p. 872.

(2) Ibid.

(3) Ibid., May 25, 1961, p. 525.

The Board's recommendations respecting drill bits and parts will be contained in Volume 2 of this Report.

4. Ancillary Drilling Equipment

The more important items of ancillary equipment used on the derrick floor include the slips, the tongs and the elevators. These are specially designed to assist the crew in adding additional lengths of pipe to the drilling string as the operation progresses, and to break down the string at the end of the operation, or when a change in the bit or the type of pipe is required. Similar devices are also used in making up and lowering casing and tubing. The slips fit around the drill pipe and upon settling against the rotary table prevent the pipe from slipping down the hole during the break-down or make-up operation. The tongs are large, heavy wrenches which are used to tighten or loosen the drill pipe or the drill collars. They are suspended from a line passing through a pulley in the head of the derrick with the other end of the line attached to a weight located under the derrick floor. The weight provides a counterbalance allowing the tongs to be moved and operated with relative ease. The slips and the tongs may be either mechanical or power-operated. The elevators are suspended from the hook of the traveling block, after the swivel had been removed, by means of two bars known as the elevator links; they form a round clasp which is fastened onto the drill pipe allowing it to be pulled out of or lowered down the hole.

The principal items of ancillary equipment used in the well are the various types of fishing tools and packers. The fishing tools are used, generally, to recover bits and pieces of equipment which get stuck or are accidentally dropped down the hole in the course of the drilling operation.

The packers are designed to seal off parts of the well in order to prevent entry of undesirable fluids or to isolate an area undergoing testing or treating. They consist of a tube surrounded with one or two rubber rings, known as the packing elements. The packer is run on the drilling string, casing or tubing and, after being set at the desired depth, the packing element is allowed to expand sealing off the area below and above the packer.

It will be noted from the above description that most of the items of ancillary equipment used on a drilling rig are highly specialized. There is no evidence to suggest that any of these are being manufactured in Canada at the present time. Imports during 1960 are estimated to have been between \$1.5 million and \$2 million; fishing tools and packers apparently account for by far the largest part of the imports.

5. Well Logging Equipment

Logging equipment is used to keep the driller informed of the progress of the drilling operation and of the conditions encountered underground. The logging equipment is usually located in

specially designed trucks or trailers and is frequently owned and operated by firms which specialize in logging. The more important methods of logging a well include mud logging, drill stem tests and electrical or radio-active logging. In mud logging, instruments such as gas testers and analyzers are used to detect the presence of gas or oil in the drilling fluid. The drill stem tester, which is a device attached to the drilling string and lowered into the well, yields information on the formation being drilled by measuring flow pressures in the test zone. In electrical logging, sensitive recording instruments sometimes containing radio-active substances, are lowered into the well; their findings are transmitted electrically to indicating and recording instruments on the surface.

The Board received no evidence to suggest that any of the well logging equipment was being manufactured in Canada, at the present time. Imports during 1960 are estimated to have been between \$750,000 and \$900,000.

6. Cementing Equipment

The equipment used in cementing operations falls into two groups: the equipment used on the surface and the "down-hole" equipment used below the ground.

The surface equipment, more commonly known as the cementing unit, consists chiefly of truck-mounted high pressure pumps, tanks and cement mixers. All of these are currently being imported. However, the Board has been informed that, with the exception of the high pressure pumps, most of this equipment could be supplied from Canadian sources. Total imports of cementing units during 1960 are estimated at about \$350,000.

The down-hole equipment consists chiefly of expendable items, including casing centralizers, wall scratchers or scrapers, cement baskets, stop rings and a variety of floating equipment. The more important of these are described below.

The casing centralizers are steel guides which are attached to the outside of the casing to keep it properly centered in the well, thus facilitating an even distribution of cement around it. Wall scratchers are steel bands with long spring-steel wires projecting outward; attached to the outside of the casing, they serve to remove the drilling mud deposited on the walls of the well. The mud deposit, usually referred to as the mud cake, must be removed to allow the cement to settle against the formation. If the mud cake were not removed, it would act as a barrier between the cement and the formation; in time, it would disintegrate and the well would have to be re-cemented. The cement-basket usually consists of a steel ring with flexible steel staves welded onto it to form a basket; the inside of the basket is covered with water-proof canvas. The cement-basket attaches around the casing; it is used in porous or weak formations to hold up the cement column, until it sets.

There are several firms in Western Canada manufacturing some of this equipment; they estimate that, together, they supply about 40 per cent of the total Canadian market for down-hole cementing equipment. On the basis of this information and of estimated imports during 1960, it would appear that the total Canadian market for this type of equipment is about \$800,000 annually. The Group of Canadian Manufacturers has suggested that all of this market could be supplied from domestic sources. However, as in the case of bentonite, rubber hose and belts, and of some other types of oilfield equipment discussed previously, the Canadian manufacturer faces certain marketing problems when attempting to supply this market. Some of these problems are discussed later in this volume.

7. Well Treating and Servicing Equipment

In some instances, the completed well has to be further treated to facilitate the flow of oil or gas from the formation and to increase the yield. The three principal methods used are: acidizing, fracturing and perforating. Acidizing, whereby 50 to 1,000 gallons of acid are pumped under pressure into the well, increases the porosity of a formation with low permeability; the acid flows into the formation, reacts with it and makes it more permeable. Fracturing is another method of increasing the permeability of a formation. In this process, a fracturing fluid, consisting of sand in suspension, is forced into the formation under high pressure and virtually cracks it open. The equipment used in acidizing and fracturing consists chiefly of trucks carrying the acid or the fracturing fluid and of pumps which force the acid or the fluid underground. Because of the extremely high pressures required in fracturing, the pumps used in this process must be very powerful.

Perforating is a method of providing openings in the casing to allow the oil and gas to flow into the well bore. Two types of equipment are used for this purpose, known as the perforating gun and the jet-perforator, respectively. The former, when lowered into the producing zone, makes openings through the casing and the cement by firing steel bullets through them; the latter achieves the same result by means of jets of high-temperature, high-velocity gases.

Another method of servicing a well is swabbing. A device, known as the swab, is used for this purpose. This is, essentially, a plunger equipped with flexible rubber packing and a set of valves; the valves open as the device is lowered into the well and close as it is brought up, lifting the oil to the surface. The swab is alternately lowered and hoisted by the draw-works of a portable rig, known as the servicing or work-over rig.

The Board received no representations respecting any of these special devices used in treating or servicing oil and natural gas wells. The evidence that is available suggests that devices such as the perforating gun, jet-perforator or the swab are not being manufactured in Canada at the present time. The total value of well servicing and treating equipment imported into Canada during 1960 is estimated at between \$250,000 and \$300,000, with perforating equipment accounting for most of the imports.

8. Wellhead Completion Equipment

This category includes the casing and tubing heads, and the Christmas-trees. Evidence given in the course of the public hearings, or otherwise available to the Board, indicates that there is a considerable variety of wellheads and Christmas-trees used. Not only do the various types differ in pressure ratings, but also in the size, or diameter, of pipe which they are capable of accommodating; the number of combinations of various pressure ratings with the different pipe sizes is considerable. In addition, there are differences in the way in which the casing or tubing heads may be attached to one another, and in the type and size of threading used.

Wellhead completion equipment does not appear to be manufactured in Canada, at present. The Group of Canadian Manufacturers informed the Board that there was a number of firms in Western Canada with the capability to manufacture screw-type casing heads with the capacity of 1,000 and 2,000 p.s.i. and up to ten inches nominal size.

Imports of wellhead completion equipment during 1960 are estimated to have been between \$1.5 million and \$2 million.

9. Fittings

Most of these are for use on the wellhead completion equipment and include a variety of couplings and nipples. The fittings for use on wellhead completion equipment are usually rated according to the size of the pipe which they are capable of accommodating, and the working pressure which they can withstand. The Board has been informed that Canadian firms can manufacture wellhead fittings up to four inches nominal pipe size and up to 2,000 p.s.i. working pressure. The Group of Canadian Manufacturers estimated that these sizes and pressure ratings account for about one-half of all the wellhead fittings used in Canada. Only a few of these, such as swaged nipples and bull plugs are now made in Western Canada, and the proportion of the total market for all fittings currently supplied from domestic production is, therefore, small.

It is estimated that the value of fittings imported in 1960 was in the order of \$250,000 to \$300,000.

10. Valves and Parts

Most of the valves are used on the wellhead completion equipment to regulate the flow of oil or gas, but some are also used in the mud circulating system. Like fittings, valves also come in a variety of sizes and pressure ratings. In the course of the public hearings, both the users and the potential Canadian manufacturers of valves agreed that there were literally thousands of different types and sizes of valves used in the petroleum and natural gas industry, and that some of these are manufactured in Canada.(1)

(1) Proceedings, May 25, 1961, pp. 529-32.

Subsequent to the hearing, the Group of Canadian Manufacturers informed the Board that, on the basis of a survey made by the Group, facilities exist in Canada for the manufacture of wellhead valves 2, 2½ and 3 inches in size and for pressures of 1,000 and 2,000 p.s.i., if suitable licensing arrangements can be made with manufacturers in the United States. The Group also indicated that at the time of the survey wellhead valves were not being manufactured in Canada. On March 8, 1962, the Minister of Trade and Commerce announced that an agreement had been reached between the Dominion Bridge Company Limited and ACF Industries (Canada) Limited under which the former company will manufacture wellhead valves from designs and specifications provided by W-K-M, the valves and fittings division of ACF Industries, Inc., of Houston, Texas.

Imports of valves and their parts for oilfield use during 1960 are estimated to have been between \$1,250,000 and \$1,500,000; most of these were for use on wellhead completion equipment.

11. Pumping Equipment and Parts

Next to drilling rigs, pumping equipment is the largest of the categories of equipment considered in this subsection and included in the break-down of import data presented earlier. Total imports of pumping equipment and parts during 1960 are estimated to have been in excess of \$2.5 million; of this total, about 70 per cent consisted of the surface pumping units, while the remaining 30 per cent consisted chiefly of the sub-surface pumps and their parts.

Pumping units are, at present, manufactured in Canada by LeGrand Limited, of Calgary. This firm also makes some of the parts, including stuffing boxes and counter-weight guards. At present, LeGrand Limited supplies only a small proportion of the total Canadian market for oilwell pumping units. A substantial portion of the units produced by this company have gear box peak torque ratings of 114,000 or 160,000 inch/pounds; since October 31st, 1962 oilwell pumping units within the range of these two ratings have been considered for customs purposes as being of a class or kind made in Canada.⁽¹⁾ It appears that there is no Canadian production of the sub-surface pumps at the present time.

The sucker rods, pony rods, polished rods and couplings are manufactured in Canada by Premier Steel Products Ltd., a subsidiary of Premier Steel Mills Ltd., of Edmonton. This firm now supplies close to 100 per cent of the Canadian market for the various types of rods used in pumping equipment. The sucker rods, pony rods, polished rods and couplings are specifically named in tariff item 399a and, as a result, enjoy the protection of the 5 p.c. British preferential and the 10 p.c. most-favoured-nation rate of duty prescribed under that item. A spokesman for Premier Steel Products Ltd. testified at the public hearing that the price in Alberta of the Canadian-made sucker rods was currently slightly less than the price

(1) Customs Memorandum D51-38.

in Montana of comparable rods manufactured in the United States. This is understood to apply along the entire range of sucker rods manufactured by Premier Steel Products Ltd.(1)

12. Oil and Gas Treating Equipment

Crude oil, in the form in which it emerges from the ground, almost invariably contains some gas. Similarly, natural gas coming out of a well sometimes contains oil. In order to make the oil or the gas commercially marketable, the two have to be separated. The equipment used for this purpose is referred to as the oil and gas separator. It is a closed steel tank, usually from 5 to 20 feet in length and from 16 to 60 inches in diameter, in which the difference in specific gravity of oil and gas is relied upon to separate them. The oil, being heavier, falls to the bottom of the tank, while the lighter gas rises to the top. Various mechanical devices, such as deflectors or mist separators, may be installed in the tank to assist in the separation. Sometimes two or three separators may be used jointly to effect the separation by stages.

In some cases, the crude oil coming out of the ground also contains water. The mixture of oil and water is usually referred to as an emulsion. Before the oil can be marketed, the water must be removed. This is usually done in a steel tank known as the emulsion treator or dehydrator. In this tank, the emulsion of oil and water is heated and then passed through a permeable material, such as excelsior, which acts as a filter collecting the particles of water. The dehydrator may be a separate piece of equipment, or it may be combined with an oil and gas separator to form an oil, gas and water separator.

The separators and the treaters are usually located close to the producing wells, in an area referred to as a tank battery. A tank battery normally serves a number of wells located in its vicinity. In its simplest form it consists of a test separator, a production separator, a treater when needed, and a number of temporary storage tanks. The test separator is required so that the output of any one well can be tested without interrupting the processing of the output from all the other wells served by the battery.

The Board understands that under the present administrative practice of the Department of National Revenue, only the oil and gas separators are allowed entry under tariff item 848 whereas the dehydrators and the combination oil, gas and water separators are not; the latter are classified according to material, chiefly under tariff item 446a at a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c. It is understood that most of the Western oilfields in operation today are wet, and consequently require the combination oil, gas and water separators to process the oil and natural gas.

Total imports of gas and oil treating equipment during 1960 are estimated to have been valued at about \$450,000. Of this, a little over one-half was represented by the separators, and the remainder consisted chiefly of parts and components.

13. Storage Tanks and Parts

Storage tanks are used to store the oil before it is delivered to the pipe-line. The number and size of the storage tanks in a tank battery varies depending on the volume of output and the frequency of deliveries to the pipe-line. Usually, there are two or three with a total capacity of three to seven times the maximum daily production. Most of the temporary storage tanks used in Canada are made of steel, either welded or bolted, with a capacity varying from 100 to 3,000 barrels. At present, only tanks up to and including 1,000 barrels capacity are allowed entry under tariff item 848; the others are classified according to component materials. The oil enters the tank through an opening at the top. When the tank is full and its exact content has been determined, the oil is delivered to the pipe-line by opening the pipe-line outlet or marketing valve; it is at this point that the producer makes delivery of the crude oil.

Gas is normally not stored at the wellhead. It is either burned-off in an area known as the flare-pit or, if produced in saleable quantities, is fed from the separator or dehydrator directly into the pipe-line which takes it to the processing plant. Just before it enters the pipe-line, the gas passes through the marketing valve which measures its volume.

As noted above, the storage tanks may be either welded or bolted. The evidence indicates that Canadian manufacturers currently supply most of the welded tanks used for temporary storage. With respect to bolted tanks, a witness for the Canadian Petroleum Association testified as follows:

"Tanks — there is no place in Canada they are now built and I am sure there are no facilities for building bolted steel tanks, all of which are brought in from the United States. I am sure the manufacturers would not suggest that we begin to make bolted steel tanks."(1)

The same witness also testified:

"To my knowledge practically all welded steel tanks are presently being manufactured in Canada."(2)

The contention that bolted tanks are not and cannot economically be manufactured in Canada was confirmed by the Group of Canadian Manufacturers who, on the basis of a survey undertaken by them subsequent to the public hearings, informed the Board that bolted tanks should be considered as one of the items which it is not economical to produce in Canada.

(1) Proceedings, May 24, 1961, p. 235.

(2) Ibid.

Imports of storage tanks during 1960 are estimated to have been valued at about \$380,000; most of these are believed to have been of the bolted type.

14. Electrical and Electronic Equipment

This category covers a variety of products, such as cables, circuit-breakers, switches, lighting equipment, motors or transformers. Some of these, such as the lighting equipment or the motors, can be readily identified as they are normally purchased separately. Other electrical or electronic devices, on the other hand, are integrated into what is, essentially, non-electrical equipment, such as perforating equipment, and are normally purchased with it. In such cases, the value of the electrical or electronic components is difficult to determine. For this reason, the total market for electrical and electronic equipment for use in drilling for oil or natural gas cannot be exactly ascertained.

The analysis of imports by the Department of Trade and Commerce shows that in 1960 imports of electrical and electronic equipment, separately identified, were in the order of \$65,000, with no electric motors reported. A similar compilation made by the Board for the year 1959 indicated the total value of such imports to have been just under \$200,000; included in this were electric motors and parts valued at about \$55,000. The Board is of the opinion that these figures offer a reasonable indication of the value of imports of electrical and electronic equipment imported as separate pieces of equipment under the tariff items reviewed in this subsection. It is, of course, not possible to estimate the value of electrical or electronic components imported with drilling or wellhead equipment of which they form an integrated part. In any event, it is generally not customary to purchase integral parts of complete pieces of equipment separately, nor is it feasible, for customs classification purposes, to break-down machinery or equipment into its component parts.

No evidence was placed before the Board to indicate the extent to which Canadian manufacturers of electrical equipment supply the market.

15. Indicating, Measuring and Recording Instruments

A wide variety of instruments is used to control the drilling operations and to measure and record the flow of oil or gas from the wellhead. The principal instruments on the drilling rig include a rotary table tachometer indicating the revolutions per minute of the rotary table, a pressure gauge measuring the pressure in the mud pump, a weight indicator showing the weight on the bit and on the drilling line, and the torque gauge measuring the twisting force which the drilling string is undergoing. There are also various devices used to observe the direction of the hole being drilled and to measure and record any deviations from the desired direction. Instruments used at the wellhead include gauges indicating tubing and casing pressures and meters measuring and recording the flow of oil or gas.

Some of the instruments, such as the drilling control instruments, are highly specialized. Most, if not all of these, are believed to be imported. Others, such as the flow meters, are of a type used in other applications and in other industries as well. These are produced in Canada, but the Board has been unable to ascertain what proportion of those used in drilling for oil and natural gas is currently being obtained in Canada. Representatives of the Industrial Instruments Manufacturers Association informed the Board that their interests lay chiefly in the instruments used in natural gas processing plants. These are discussed in detail in the following subsection.

Imports of indicating, measuring and recording instruments for use in drilling for oil and natural gas are estimated to have been valued at about \$200,000 in 1960.

Natural Gas Processing Equipment - Tariff Item 410b

As it leaves the ground, natural gas may be either "sour", owing to the presence of hydrogen sulphide, or "wet", because it contains large quantities of certain volatile hydrocarbons, such as propane or butane. Where hydrogen sulphide or liquid hydrocarbons occur in the gas in substantial quantity, as is usually the case in Western Canada, they must be removed before the natural gas can be marketed. This is done in natural gas processing plants which, as a rule, are located close to the producing field.

The processing takes place in a series of vessels through which the gas flows, being alternately compressed, heated, cooled and dried. During the process, first the hydrogen sulphide and then the hydrocarbons are removed and the sweet, dry gas enters the pipe-line for delivery to domestic and industrial users. The hydrogen sulphide removed from the gas is usually further processed into elemental sulphur, while the hydrocarbons are fractionated to obtain propane and butane gas and a hydrocarbon condensate for use by refineries in blending gasoline.

Most of the equipment used in natural gas processing plants consists of various types of vessels, tanks, drums and towers. For the most part, these are heat transfer equipment which, for this reason, is described below in greater detail. A more complete list of the major items of equipment used in a natural gas processing plant is given in Appendix C.

Heat transfer equipment, or heat exchangers, perform many different functions, being used as coolers, heaters, re-boilers, condensers, evaporators or air dryers as well as for other specialized applications. Although there are many different types of heat exchangers to perform the various functions, the basic design and the principle on which they operate are the same for all. They usually consist of a long, cylindrical body, or shell, in which is enclosed a "bundle" of parallel tubes. The principle of operation is similar to that employed in an automobile radiator; a hot and a cold fluid, such as oil, water, air or gas, are passed through the exchanger, one flowing inside the tubes and the other outside the tubes. Heat from the hot fluid is transferred through the walls of the tubes to the cold fluid which absorbs the heat; the formerly hot fluid, in turn, cools off.

Heat exchangers are rated on the basis of temperature and pressure under which they operate. The shells and the tubes can be made of a variety of materials, including cast iron, alloy steels, copper, nickel, brass, aluminum and their alloys. The exact choice of material will depend on a number of factors, particularly on the extent to which the fluids being processed are apt to cause corrosion in the equipment. For example, it is understood that owing to the corrosive property of sulphur, copper or copper alloys are not suitable for equipment used in processing sour gas, but are acceptable for use in processing sweet gas.

In addition to vessels, there are two other major groups of equipment used in natural gas processing plants. These are the pumps, which are used in substantial quantities to circulate the fluids from one vessel to another, and a variety of instruments used for indicating and recording pressures, temperatures and quantities at various stages of the gas processing operation.

Evidence available to the Board indicates that domestic manufacturers currently supply much of the equipment used in natural gas processing plants. In a number of installations completed in recent years for which the Board obtained detailed figures, between 75 and 85 per cent of the total expenditure on equipment was for equipment manufactured in Canada. Examples of the various types of equipment which are being procured from domestic sources are given in Appendix C. Indications are that imports are confined chiefly to types of equipment which are not normally available from Canadian sources. For example, it is understood that air coolers are not available from Canadian sources, nor are some types of high pressure pumps and compressors.⁽¹⁾ A reference to Appendix C will show that these three categories are the principal types of equipment being imported.

For statistical purposes, imports under tariff item 410b of equipment for use in natural gas processing plants are included with imports of certain types of equipment for use in coal mines and coke plants. In recent years, imports were generally in the order of \$2 million annually, except for the years 1957 and 1958 when they reached nearly \$7 million in each year. The Board made a sample survey of these imports for a twelve-month period from October, 1959 to September, 1960, and found that machinery and apparatus for use in natural gas processing plants accounted for about 89 per cent of the imports.⁽²⁾ Compressors, heat exchangers and various types of pumping and dehydrating equipment accounted for most of the imports for use in natural gas processing plants. Instruments and controls accounted for less than 2 per cent of the total imports for that purpose.

(1) Proceedings, May 24, 1961, pp. 264-5.

(2) Appendix B, Table 10.

Equipment for Extracting Oil from Shales and Sands

Machinery and equipment, of a class or kind not made in Canada, for use in producing unrefined oil from shales are provided for in tariff item 410c(i). The provision, in one form or another, has been in the Customs Tariff for many years. The Board understands that until about the turn of the present century, there was some production of oil from shales in New Brunswick, but none in Canada since. The Board received no representations or proposals respecting this item and there are, apparently, no imports under it.

Machinery and apparatus for operating oil-sands by mining operations and for extracting oil from the sands so mined are provided free entry under all three tariffs in item 410c(ii). It has been estimated by some authorities that the bituminous sands which occur in the Athabasca River area of Alberta hold 300 billion barrels or more of petroleum, suggesting that the sands might hold the world's largest potential reserve of oil. Up to the present, only experimental work has been carried out in this area. However, in October, 1962, Great Canadian Oil Sands Ltd., of Toronto, was authorized by the Government of Alberta to produce 31,500 barrels of oil daily, or some 11.5 million annually, from the sands. The company is to start building the necessary processing facilities not later than January 1, 1964 and to be producing oil from the sands by September, 1966. Another company, Cities Service Athabasca, Inc., has applied, together with three other firms, for permission to produce 100,000 barrels daily, or some 36.5 million annually, by 1968 or 1969. At the time of this inquiry, no decision had been made by the Government of Alberta respecting this application.

Cities Service Athabasca, Inc. which jointly with the other three firms, has been operating a pilot plant at which mining and extraction experiments are conducted, made available to the Board, in confidence, information respecting its imports under tariff item 410c(ii). This shows that imports under the item have, so far, been relatively small and erratic. In addition, the company in its submission to the Board had this to say about the market for this type of equipment:

"... we submit that oil sands development is in a preliminary stage and that no informed consideration can at this time be given to amendment of the tariff item in view of the insufficient data available as to type, quantity and source of equipment and machinery likely to be utilized in oil sands operations."(1)

(1) Proceedings, May 25, 1961, pp. 510-11.

When asked to comment on the significance of these two items to the members of his group, the spokesman for the Group of Canadian Manufacturers testified as follows:

"There are some of us involved in making special equipment for certain experimental processes in the Athabasca tar sands but it is in the normal course a strictly custom business and for that reason it would seem superfluous to us to bring it up as a matter of discussion from our standpoint in this hearing."(1)

(1) Proceedings, May 23, 1961, p. 116.

FACTORS AFFECTING COMPETITION IN THE CANADIAN MARKET

In addition to the basic requirements of availability of the proper type of equipment at a competitive price and in the required variety, the market for oilfield equipment appears to be strongly influenced by at least three other factors. These are: (a) the established pattern of distribution through supply houses, (b) the preference for brand names and (c) the emphasis on service. Each of these is discussed below in greater detail. Taken together, these factors help to explain why there continue to be substantial imports of some of the types of oilfield equipment which could be supplied economically from Canadian production.

Supply Houses

Most of the oilfield equipment used in Canada is purchased through supply houses; this is particularly true of drilling and wellhead completion equipment. There are about six major supply houses in Western Canada, each of which offers a wide range of the equipment, components and parts required by the driller. In addition, there is a number of smaller supply stores which specialize in specific items of equipment, such as wellhead assemblies or pumping units. The large supply houses maintain warehouses close to the major active fields from which they are capable of effecting quick deliveries of components and spare parts; these are usually staffed with personnel qualified to give on-the-spot service and advice to the driller.

It appears that, with one exception, the major supply houses in Western Canada are subsidiaries of supply houses in the United States. The latter, in turn, are usually owned by oilfield equipment manufacturers, whose products they sell. The effect of this close inter-relationship on the position of a Canadian manufacturer of oilfield equipment wishing to place his product on the market has been described as follows:

"The oilfield supply business is dominated by American oil supply stores usually controlled by manufacturers of oil country goods. It is impossible for a Canadian company to break into this supply and distribution system without a price advantage over the American manufactured article."⁽¹⁾

The deterrent effect of the close relationship between Western Canadian and United States supply houses on the competitive position of the Canadian manufacturer has also been noted in a recent study by the Department of Trade and Commerce.

⁽¹⁾ Proceedings, May 23, 1961, pp. 42-3.

" Representatives of some supply houses in Canada indicated that they did not have the authority to purchase oil drilling equipment made in Canada without prior authority from their parent company. Before a new Canadian-made line can be purchased by a branch of a supply house operating in Canada, it must be approved through the central purchasing department at the company's head office. After such authority has been received, the Canadian office is usually free to make local purchases, if it so desires."⁽¹⁾

It would thus appear that a Canadian manufacturer may find himself, at least initially, at a disadvantage when attempting to introduce his product on the market. On the other hand, the Board has evidence that some of the oilfield supply houses in Western Canada habitually procure some of the smaller, expendable items in Canada.

Brand Names

It appears that in many instances the quality of a particular piece of oilfield equipment is a more important consideration than its price. This is particularly so in the case of the critical, down-hole pieces of equipment, such as the drill bits, whose failure in the course of drilling may necessitate a retrieving or "fishing" operation, the cost of which may run into several thousands of dollars in lost time and specialized equipment. Many of the drillers now operating in Western Canada came originally from the United States and have preferences, based on many years of experience, for critical items of equipment manufactured in that country; such preferences are usually associated with a brand or trade name.

There are very few items of oilfield equipment currently manufactured in Canada that are of accepted, proven quality and carry a brand or trade name. The Canadian manufacturer faces, therefore, the necessity of gaining market acceptance in competition with well-known and proven imported products, or of entering into licensing agreements with manufacturers of such products in other countries.

Service

Many of the United States manufacturers who sell oilfield equipment in Canada provide on-the-spot service and technical advice to the driller. The importance of this was described by a witness for the Imperial Oil Company Limited during examination by counsel as follows:

⁽¹⁾ Department of Trade and Commerce, Spotlight on Oil Drilling Equipment, Queen's Printer, Ottawa, 1961, p. 20.

QUESTION: "Now do these manufacturers themselves give much of the service that you are talking about?

ANSWER: "Yes, that is a very important part of the selling of their product is the service that they give, not only prior to the installation of the equipment but also the service they give on their equipment when it is in operation and this carries considerable weight in the decision to purchase a specific type of equipment."(1)

As noted earlier, most of the Alberta firms which manufacture oilfield equipment, or have the capability to do so, are relatively new and, on the whole, quite small. The necessity of providing service and technical personnel thus places a much greater burden on their resources than it does on those of firms in the United States, some of which are the largest of the kind in the world, and most of which have the advantage of many years of experience in the field.

(1) Proceedings, May 25, 1961, pp. 483-4.

FINANCIAL CONSIDERATIONS

The machinery and equipment under review in this volume represent an element of cost to the oil and gas producing companies. As a result, their importance in relation to total drilling costs and to the total cost of gas processing facilities is of some interest.

The Board obtained in confidence detailed information respecting the cost of drilling and completing typical wells in the Pembina and Swan Hills areas of Alberta; these two areas together accounted in 1960 for about 55 per cent of the new oil and gas wells capable of production. Although the two areas vary considerably in the conditions under which drilling takes place and in the depth at which oil and gas occur, the analysis of the cost data yielded a remarkably uniform result. It showed that the cost of the items under consideration, namely amortization of capital cost of the drilling rig and ancillary equipment, and the cost of drilling bits, mud and chemicals used, accounted in each case for slightly less than 15 per cent of the total drilling and completion cost.

With respect to machinery and apparatus used in processing natural gas, for several recently completed plants, the capital cost of such equipment accounted for 30 to 45 per cent of the total outlay.

The over-all financial position of the petroleum industry, and its profitability, are extremely difficult to assess; it is even more difficult to make a meaningful comparison of the performance of this industry with that of any other. This is due to a number of factors, the more important of which are: (a) the large discrepancies which usually exist between the book value and the intrinsic value of proven oil and gas reserves and of unproven acreage; (b) the sizeable depletion allowances and write-off of oil development expenses allowed under the income tax legislation to firms in the petroleum and natural gas industries, but not applicable to firms in manufacturing industries; (c) the various degrees of vertical integration within the petroleum and natural gas industry, which make it difficult to separate the exploration, production or gas processing activities from the refining and retailing operations of the integrated firms; and (d) the fact that a substantial portion of the output and of the reserve holdings of petroleum and natural gas is controlled by branches of companies domiciled outside of Canada.

For the reasons noted above, the published financial statements of the firms in the petroleum and natural gas industry do not lend themselves to an analysis of considerations relevant to this inquiry. However, the Department of National Revenue compiles and publishes financial statistics based on taxation returns of companies which are classified as belonging to the "Oil and Natural Gas" and the "Petroleum Refining and Products" groups of

industries; these are of general interest and give at least some indication of the growth of the industry in recent years. For example, the taxation statistics show that in the period from 1953 to 1960, the assets as well as the capital employed by the two groups of companies more than doubled and that, while profits declared for taxation purposes by the companies in the "Petroleum Refining and Products" group⁽¹⁾ were not as high in relation to capital employed as in Canadian manufacturing industries generally, the amounts paid out in dividends compared quite favourably. Summaries of the financial statistics of the "Oil and Natural Gas" and the "Petroleum Refining and Products" groups of companies are given in Appendix D.

The Board also obtained financial information from a number of manufacturers of machinery included in the Group of Canadian Manufacturers. Because of the relatively small number of firms involved, some of which have been operating in Canada for a few years only, it is not possible to publish a composite of the operating results of these firms without revealing information which is in its nature confidential. It can be said, however, that in most instances the net returns realized by these firms failed to match those realized by Canadian manufacturers generally.

(1) The companies in this group account for most of the crude petroleum and natural gas produced in Canada.

SUMMARY AND CONCLUSIONS

This first volume of the Board's Report on tariff items in Reference 130 deals chiefly with articles of oilfield equipment and machinery and apparatus used in natural gas plants. In some instances, oilfield equipment also finds a use in drilling for potash or rock salt, and so equipment for these end uses is covered also in this volume. Tariff items relating to machinery and equipment used in mining, refining, and metallurgical operations are dealt with in a subsequent volume. In addition, bits and drills other than drilling rigs, which are used not only in drilling for oil, gas, potash and rock salt, but also in drilling for other minerals, are considered in the second volume where they can be viewed in relation to the mining as well as the petroleum industry.

Production of crude oil and natural gas has increased many times over since the end of World War II. Although the bulk of the increase has occurred in Western Canada, production of both gas and oil has increased in Eastern Canada as well. Exploration, as measured by footage drilled, increased rapidly up to 1957, and subsequently has been sustained at a level somewhat below the peak activity.

The principal tariff item relating to equipment used in exploration for and production of oil and gas is 848, which provides for duty-free entry from all countries. This end use item was introduced in 1943, before the great upsurge in activity in the oilfields had got under way. Well-drilling machinery and apparatus were previously provided for in tariff item 410d, also a duty-free item, which to a considerable degree still duplicates existing item 848.

Sucker rods, pony rods, and polished rods, which are articles used in connection with producing wells, are entered under tariff item 399a at rates of duty of 5 p.c. British preferential and 10 p.c. most-favoured-nation, though they were free of duty until 1959 when these articles ceased to be entered under item 848. Most wire rope used in drilling operations is dutiable at 5 p.c. from all countries under tariff item 410e. With these exceptions, articles covered in this volume of the Report for use in exploring, drilling, or producing from oil and gas wells are entered free of duty.

Free entry is also accorded by item 410c to machinery and apparatus used to develop oil shale and tar sand deposits. Machinery and apparatus for natural gas plants have, however, entered Canada under item 410b at most-favoured-nation rate of duty of 10 p.c. In general, though, machinery and apparatus for the development and operation of crude oil and natural gas wells are entered free of duty, and this situation has persisted through the period of most rapid development in the Canadian petroleum industry.

At the public hearings, the Group of Canadian Manufacturers of Oilfield Equipment proposed that this privilege of free entry be restricted to goods of a class or kind not made in Canada, and that rates of duty of 5 p.c. British preferential, 10 p.c. most-favoured-nation and 20 p.c. general be applied on importations of articles ruled made in Canada. These manufacturers asked for protection in order to maintain their market against competition from efficient American producers with surplus capacity, and to provide an incentive for oil companies and drillers in Canada to purchase Canadian equipment when of comparable price and quality. The Group pointed out that it is impossible for a Canadian company to break into the oilfield supply business without some price advantage over well established foreign manufacturers of oil-country goods. These proposals with respect to existing item 848 were supported by the Machinery and Equipment Manufacturers' Association of Canada. This association, representing chiefly Eastern Canadian manufacturers of heavy machinery, proposed that the rates of duty on equipment for natural gas plants be raised appreciably. The Canadian Petroleum Association at the hearings did not object to a nominal increase in tariffs being applied to equipment available from Canadian production on satisfactory terms of price, quality, and delivery. The latter association did not, however, favour the extension of "class or kind" provisions in the tariff, and proposed no change in the wording or rates of duty in tariff items 410c, 410d, or 848.

In addition to these representations, the Board received proposals and briefs from a number of other parties. Some of them, notably the Canadian Electrical Manufacturers Association and John Inglis Co. Limited, recommended deletion of the end use items in the tariff which provide lower rates of duty for articles used in oilfield operations; the effect would be to impose the rates of duty generally applying on the equipment regardless of its end use.

During the rapid expansion of the 1940's and 1950's, the petroleum industry became well established in Western Canada. In the opinion of the Board it is no longer necessary to extend to the industry specially favourable concessions of free entry for oilfield equipment to ensure the growth and expansion of the industry. At the same time, the Board does consider reasonable the request of the Group of Canadian Manufacturers that their position in the Canadian market for oilfield equipment be accorded moderate protection.

Barring some spectacular new discoveries, the number of drilling rigs likely to operate in Canada in the future is relatively small, and so the main market for oilfield equipment will not consist of complete rigs or even the major components of drilling rigs. Rather, the chief market to be served by Canadian producers will consist of those articles required in large quantities, chiefly wearing parts that must be replaced frequently. Wire rope, drilling bits, and the wearing parts in the fluid end of slush pumps all are used in considerable quantities. Wall scratchers and casing centralizers are simple pieces of equipment used in every hole. Moderate tariff protection for these and similar articles will encourage their manufacture in Canada.

Tubular oil-country goods are already protected under tariff item 399a. Casing and tubing are required in quantity to finish every producing hole and are now being made in Canada.

If protected by a moderate tariff, wellhead assemblies in the smaller sizes and lower pressure ratings might also be made in Canada in considerable quantity. The smaller sizes of wellhead valves might also constitute a market of reasonable size for Canadian producers if there were some protection against import competition.

In the view of the Board, having regard to the general structure of the Canadian tariff, the duties requested by the Group, namely British preferential 5 p.c., most-favoured-nation 10 p.c. and general 20 p.c. will provide moderate and reasonable protection for those articles of oilfield equipment now made or likely to be made in appreciable quantities in Canada. Although a very great number and variety of articles are used in oilfield drilling operations, many of them can be grouped into easily identifiable units or categories such as drilling rigs, draw works, well logging equipment, and drilling mud.

The Board considers that it would not be desirable to burden the drilling companies and oil companies by levying customs duties on any large number of important articles that are neither obtainable in Canada now nor likely to be within the next few years. Goods of substantial importance in these companies' purchases which are not made and are unlikely to be made in Canada are accordingly named specifically in the recommended tariff items with provision for free entry from all countries. Articles of importance that are now made or which are likely to be made within the next few years in reasonable quantities are also provided for with rates of duty of 5 p.c. British preferential, 10 p.c. most-favoured-nation, and 20 p.c. general. For the remainder, a basket end use item is provided, with free entry recommended for goods when of a class or kind not made in Canada, and dutiable entry when of a class or kind made.

The recommendations of the Board are also designed to specify more clearly than is presently done in existing items 410d or 848 the point in a system of production of crude oil or natural gas at which production ceases and transmission begins. As presently administered in respect to equipment for producing wells, item 848 includes within its scope the downhole equipment and everything up to and including the wing valve on the wellhead assembly. In addition, however, item 848 has been administered to include a few articles located beyond the wellhead, such as bolted steel tanks and some separators. There is, therefore, at present no single cut-off point in the chain of processing to differentiate articles which will be entered free of duty under item 848, and other articles which will be entered under other tariff items that may be dutiable. To provide an explicit cut-off point in the tariff, the Board is recommending that reference be inserted in certain of the recommended tariff items to the use of specified equipment "up to and including the wellhead assembly or surface oil pumping unit"; also the Board is inserting in another recommended item provision for certain equipment when

"located between the wellhead assembly or surface oil pumping unit and the field marketing valve". This latter provision means that certain equipment, such as bolted steel tanks and separators and treaters will be entered under the item when for use in the producing zone of the oilfield operation and not at some point beyond the marketing valve at which the crude oil or gas is deemed to having been delivered to transportation.

In addition, the Board in its recommendations is making provision for machinery and apparatus for use in natural gas processing plants which have been entered under 410b. A more precise wording of the recommended item dealing with this equipment will remove it from any possible inclusion in 410b, which item will be dealt with in the second volume of this Report.

In its recommendations concerning parts and materials, the Board is proposing that, in general, parts should follow the machine and bear the same rates of duty. As at present, materials for use in the manufacture of goods specified in certain duty-free tariff items will continue to be entered free of duty, and there is also specific provision for duty-free entry of drilling mud. With the creation of new dutiable items for oilfield and related equipment, however, the Board is recommending no special tariff item for materials used in the manufacture of these dutiable articles; each material will fall under whatever tariff item would provide for it in the absence of a special end use category.

The type of equipment used in drilling for oil or gas may also be used in drilling for potash or rock salt. Once discovered, however, potash or rock salt can be extracted from the earth by either of two methods, one (brining) resembling production of crude oil from wells, and the other resembling extraction of minerals by conventional mining methods. Brining entails production from wells, so that a number of holes must be drilled with drilling rigs before production from the deposit of salt or potash takes place. When potash or rock salt is extracted by conventional mining methods, the equipment required covers that very broad range of articles required in almost any mine for removing ore at the face, and for bringing it to the surface in pieces of suitable size.

The Board considers that equipment for the discovery or extraction of potash and rock salt should be accorded the same tariff treatment as the same equipment would have if imported for use in any other branch of the extractive industries. Accordingly, the Board includes the well-drilling machinery and apparatus and drilling mud used in the exploration for or brining of potash or rock salt in the first volume of this Report, and recommends the same tariff treatment as if the articles were used by the oil and gas industry. Mining machinery and equipment used in the mining of potash and rock salt are dealt with in the second volume in the same manner as if the equipment were used in the mining of other minerals.

RECOMMENDED SCHEDULE

1. That tariff item 399a in Schedule A to the Customs Tariff be amended to read as follows:

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
399a	Pipes or tubes of iron or steel, commonly known as "oil-country goods", being casing or tubing and fittings or couplings therefor, for use in connection with natural gas or oil wells	5 p.c.	10 p.c.	20 p.c.

2. That Schedule B to the Customs Tariff be amended by striking out item 1047, and the enumeration of goods and the rate of drawback of duty set opposite that item.
3. That Schedule A to the Customs Tariff be amended by striking out tariff items 410c, 410d, 410e, 848, 848a, 848b, and the enumerations of goods and the rates of duty set opposite each of these items, and by inserting therein the following items, enumerations of goods and rates of duty:

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
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I Machinery and apparatus for use in exploratory or discovery work in connection with oil or natural gas wells or for the development, maintenance, testing, depletion or production of such wells up to and including the wellhead assembly or surface oil pumping unit; well-drilling machinery and apparatus for use in the exploration, discovery, development or operation of potash or rock salt deposits:

(a) Belting and hose, wholly or partly of rubber, and fittings and accessories therefor whether attached or not;

Casing centralizers, wall scratchers and scrapers, stop rings and cement baskets; Moulded or extruded rubber products, namely cementing plugs, protectors, wipers, swab rubbers and rubber rollers for wireline guides and turnback units;

Screens for shale shakers; Sucker rods, pony rods, polished rods, and couplings therefor;

Swaged nipples and bull plugs not exceeding 4 inches in outside diameter;

Wellhead valves, not under 2 inch or over 3 inch nominal size, rated for service in working pressures up to and including 2,000 pounds per square inch W.O.G. (water, oil, gas), excluding check valves, pressure regulators, automatic safety valves and needle valves;

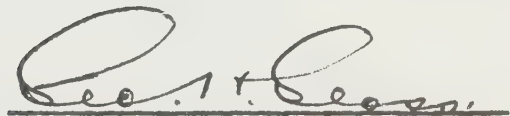
Wire rope;

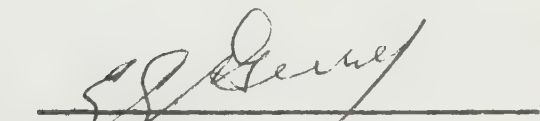
Parts of all the foregoing ... 5 p.c. 10 p.c. 20 p.c.


Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
I	(b) Blow-out preventers; Crown blocks and traveling blocks; Elevators and elevator links; Fishing tools; Flanged casing heads; Masts or derricks for drilling, servicing or work-over rigs; Rotary tables; Screwed casing heads for surface casings exceeding 10 $\frac{3}{4}$ inches in outside diameter, or rated for service in working pressures exceeding 2,000 pounds per square inch W.O.G. (water, oil, gas); Swivels; Well logging equipment; Well perforating equipment; Wellhead valves over 3 inch nominal size, or rated for service in working pressures exceeding 2,000 pounds per square inch W.O.G. (water, oil, gas); Well-packers;			
	Parts of all the foregoing	Free	Free	Free
	(c) Drilling, servicing or work-over rigs, assembled or not; Draw works; Slush pumps; Motive power and drive groups for operating slush pumps, draw works or rotary table ...	Free	Free	Free
	(d) Used drilling, servicing or work-over rigs, assembled or not, the duty to be refunded when such rigs have remained in Canada continuously for three years	15 p.c.	15 p.c.	15 p.c.

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
I	(e) All other machinery and apparatus, and parts thereof; parts of goods enumerated in (c) of this item:			
	(i) Of a class or kind made in Canada	5 p.c.	10 p.c.	20 p.c.
	(ii) Of a class or kind not made in Canada	Free	Free	Free
II	Bolted steel tanks; Chemical injection pumps; Chokes, beans and flow controllers; Separators and treaters, oil, gas or water;			
	All the foregoing for use in connection with oil or natural gas wells when located between the wellhead assembly or surface oil pumping unit and the field marketing valve:			
	(i) Of a class or kind made in Canada; parts thereof	5 p.c.	10 p.c.	20 p.c.
	(ii) Of a class or kind not made in Canada; parts thereof	Free	Free	Free
III	Drilling mud and additives therefor for use in drilling for oil, natural gas, potash or rock salt; materials for use in the manufacture of drilling mud and additives therefor	Free	Free	Free
IV	Machinery and apparatus for use in the distillation or recovery of products from natural gas:			
	(i) Of a class or kind made in Canada; parts thereof	5 p.c.	15 p.c.	25 p.c.
	(ii) Of a class or kind not made in Canada; parts thereof	Free	Free	Free

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
V	Machinery and apparatus for use in producing unrefined oil from shales or for operating oil-sands by mining operations or for extracting oil from the sands so mined; parts of the foregoing	Free	Free	Free
VI	Materials for use in the manufacture of the goods specified in tariff items I(b), I(e)(ii), II(ii), IV(ii) and V	Free	Free	Free


First Vice-Chairman


Member


Member

Ottawa, January 31, 1963.

NOTES ON RECOMMENDED ITEMS

relating to oilfield equipment

Recommended Item I

- I Machinery and apparatus for use in exploratory or discovery work in connection with oil or natural gas wells or for the development, maintenance, testing, depletion or production of such wells up to and including the wellhead assembly or surface oil pumping unit; well-drilling machinery and apparatus for use in the exploration, discovery, development or operation of potash or rock salt deposits:

(a) Belting and hose, wholly or partly of rubber, and fittings and accessories therefor whether attached or not; Casing centralizers, wall scratchers and scrapers, stop rings and cement baskets; Moulded or extruded rubber products, namely cementing plugs, protectors, wipers, swab rubbers and rubber rollers for wireline guides and turnback units; Screens for shale shakers; Sucker rods, pony rods, polished rods, and couplings therefor; Swaged nipples and bull plugs not exceeding 4 inches in outside diameter; Wellhead valves, not under 2 inch or over 3 inch nominal size, rated for service in working pressures up to and including 2,000 pounds per square inch W.O.G. (water, oil, gas), excluding check valves, pressure regulators, automatic safety valves and needle valves; Wire rope; Parts of all the foregoing

5 p.c.

10 p.c.

20 p.c.

(b) Blow-out preventers; Crown blocks and traveling blocks; Elevators and elevator links; Fishing tools; Flanged casing heads; Masts or derricks for drilling, servicing or work-over rigs; Rotary tables; Screwed casing heads for surface casings exceeding $10\frac{3}{4}$ inches in outside diameter, or rated for service in working pressures exceeding 2,000 pounds per square inch W.O.G. (water, oil, gas); Swivels; Well logging equipment; Well perforating equipment; Wellhead valves over 3 inch nominal size, or rated for service in working pressures exceeding 2,000 pounds per square inch W.O.G. (water, oil, gas); Well-packers; Parts of all the foregoing

Free

Free

Free

(c) Drilling, servicing or work-over rigs, assembled or not; Draw works; Slush pumps; Motive power and drive groups for operating slush pumps, draw works or rotary table

Free

Free

Free

- I (d) Used drilling, servicing or work-over rigs, assembled or not, the duty to be refunded when such rigs have remained in Canada continuously for three years

15 p.c. 15 p.c. 15 p.c.

(e) All other machinery and apparatus, and parts thereof; parts of goods enumerated in (c) of this item:

(i) Of a class or kind made in Canada

5 p.c. 10 p.c. 20 p.c.

(ii) Of a class or kind not made in Canada

Free Free Free

Recommended item I would replace, for the most part, existing tariff items 410d, 410e, 848 and 848a. Also it would provide for the sucker rods, pony rods, polished rods and couplings now covered by item 399a.

Part (a) of the item names those products which are used in sufficient quantities to warrant their production in Canada, and for the most part they are now all being made in Canada and already enjoy a significant share of the Canadian market. On these goods the Board recommends duties of 5 p.c. British preferential, 10 p.c. most-favoured-nation and 20 p.c. general.

Part (b) of the item names certain products which in the view of the Board are required in such limited quantities that it is unlikely the demand in the near future would justify their manufacture in Canada. For these goods the Board has recommended the continuation of duty-free entry.

Part (c) continues duty-free entry for complete brand-new drilling rigs or servicing or work-over rigs and also the major working components of such rigs, namely, the draw works, the slush pumps and the motive power, including the drive groups. However, there is no specific provision for "parts" in item I(c) and it is intended that these should fall under item I(e). There are certain wearing parts in the goods covered by item I(c), for example the fluid end parts of slush pumps, for which there is a large replacement market and item I(e) is intended to encourage the production of these replacement parts in Canada by the provision of a 10 p.c. most-favoured-nation duty once they are ruled to be of a class or kind made in Canada.

Part (d) covers complete used drilling rigs or servicing or work-over rigs and provides for a 15 p.c. duty on such rigs under both the British Preferential and Most-Favoured-Nation Tariffs; however, it is also provided that once such rigs have remained in Canada for three years the duty is refundable.

The Canadian Association of Oilwell Drilling Contractors urged that importation into Canada of used drilling equipment be discouraged. They argued for an embargo on the importation of such equipment, but in the Board's view under the terms of the reference it would not be in order for the Board to consider or recommend embargoes or other quantitative restrictions. The Board does not consider that new entrants into the oil drilling business or those presently in it and wishing to add to their equipment, should be precluded from importing used rigs. On the other hand, the Board does consider as reasonable the drillers' request that they be given some measure of protection against the temporary importation of oil drilling rigs. They pointed out that without such protection, American drillers in times of a lull in United States drilling activities, can move their equipment into Canada to drill during the summer months or longer, and on completion of their contracts move their equipment back to the United States. The purpose of tariff item I(d) is not to prohibit the entry of used rigs but to ensure that free entry of such rigs is restricted to drillers who are either permanently located in Canada or who are prepared to leave their rigs in Canada for a period of at least three years.

Part (e) is intended to cover machinery, apparatus and parts not provided for elsewhere in the item. It should be noted, however, that drill bits will be dealt with in Volume 2. Item I(e) provides duty-free entry from all countries on such goods when they are of a class or kind not made in Canada, but once they are ruled to be of a class or kind made in Canada they become dutiable at 5 p.c. under the British Preferential and 10 p.c. under the Most-Favoured-Nation Tariff. Some of the parts covered by this item may be subject to extreme conditions and may wear out rapidly. Therefore, it is desirable to provide that parts, when known to be made in Canada, should qualify for protection. This provision differs from the more usual practice in the tariff of having the classification of the parts follow that of the machine or apparatus.

Recommended item I includes drilling equipment whether for use in the petroleum or natural gas industry or for use in exploring for potash and rock salt. Since the same equipment may be used for these different purposes, administration of the end use provision will be simpler if the tariff treatment is the same. Otherwise, drilling equipment imported for use in exploration for oil and gas, for example, might become subject to duty if potash is discovered instead.

Recommended Item II

II Bolted steel tanks; Chemical injection pumps; Chokes, beans and flow controllers; Separators and treaters, oil, gas or water;

All the foregoing for use in connection with oil or natural gas wells when located between the wellhead assembly or surface oil pumping unit and the field marketing valve:

(i) Of a class or kind made in Canada; parts thereof

5 p.c.

10 p.c.

20 p.c.

(ii) Of a class or kind not made in Canada; parts thereof

Free

Free

Free

The Board understands that one of the main problems in the administration of item 848 has been the determination of the point at which the petroleum or natural gas is "produced". Apparently Customs officials have permitted the entry under this item of some but not all pieces of machinery and apparatus which are physically located beyond the wellhead. To meet this problem the Board has recommended that item I should cover machinery and apparatus up to and including but not beyond the wellhead assembly or the surface oil pumping unit.

The petroleum and natural gas producers urge that the coverage of item 848 should be extended up to the "marketing valve". They argue that everything that takes place prior to the flow of the crude oil or the crude natural gas through the marketing valve takes place in the "production" of the oil or gas. The technology of oil and gas production is changing rapidly. The Board is therefore not prepared to extend the scope of item 848 to the marketing valve. However, there are certain pieces of machinery and apparatus which, when they are located between the wellhead and the field marketing valve should, in the view of the Board, be accorded the same tariff treatment as the machinery and apparatus used up to the wellhead. These goods have been named in recommended item II. It may be that from time to time it will be considered desirable to add additional pieces of equipment to recommended item II in the light of new developments.

Recommended Item III

III Drilling mud and additives therefor for use in drilling for oil, natural gas, potash or rock salt; materials for use in the manufacture of drilling mud and additives therefor

Free

Free

Free

The drilling mud and additives specified in item III are now classified for the most part under item 848 or item 848a. Under both items they are free of duty from all countries.

It is believed that Canadian consumption is now something in excess of \$2½ million annually; until recently it was met almost entirely by imports. The Board was informed that, at present, Canadian requirements are being supplied almost entirely from Canadian production, the major exception being a few additives of a special nature.

In these circumstances, and having regard to the nature of the principal ingredient of drilling mud, i.e. bentonite, the Board does not consider that the imposition of a duty is warranted and is therefore recommending the continuation of duty-free entry. Also, in this item the Board is recommending continued free entry of materials used in the manufacture of drilling mud and additives; these are now covered by item 848b.

Recommended Item IV

IV Machinery and apparatus for use in the distillation or recovery of products from natural gas:

(i) Of a class or kind made in Canada; parts thereof

5 p.c.	15 p.c.	25 p.c.
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(ii) Of a class or kind not made in Canada; parts thereof

Free	Free	Free
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Machinery and apparatus for use in natural gas processing plants have been imported under tariff item 410b which reads, in part, as follows:

"... machinery and apparatus for use in the distillation or recovery of products from coal tar or gas; parts of the foregoing, not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel"

Free	10 p.c.	12½ p.c.
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Some of the manufacturers or their associations urged that item 410b be deleted entirely; others urged that it be restricted to coal gas.

The natural gas processors stated that, for the most part, the machinery and apparatus used in natural gas processing plants constructed to date have been produced

in Canada; the exceptions have mostly been pieces of equipment which have not been available from Canadian sources. They urged the continuation of a provision for the entry of such machinery and apparatus at the rates now in effect under item 410b.

Recommended item IV is intended to encompass machinery and apparatus for use in natural gas processing plants, and by its more precise wording to exclude these articles from the ambit of tariff item 410b.

Since the equipment in question falls into both the categories of goods that are made in Canada and goods that are not, the Board recommends the provision for such machinery and apparatus with the addition of a class or kind clause. Under item IV(i), there would be an increase of 5 p.c. in both the British preferential and the most-favoured-nation rates when the goods are of a class or kind made in Canada. At these rates of 5 p.c. British preferential and 15 p.c. most-favoured-nation, the Board considers that the drawback of duty on imported materials provided by item 1059 would no longer be necessary.

Recommended item IV(ii) would provide duty-free entry for machinery and apparatus of a class or kind not made in Canada.

The provision for parts in existing item 410b excludes motive power, tanks for gas, certain smaller sizes of valves, and pipes of iron or steel. The Board knows of no reason why these particular goods should be treated differently from others. Accordingly, the recommended item contains no such exclusions.

Recommended Item V

- V Machinery and apparatus for use in producing unrefined oil from shales or for operating oil-sands by mining operations or for extracting oil from the sands so mined; parts of the foregoing

Free

Free

Free

Item V would replace existing items 410c(i) and 410c(ii).

Under existing item 410c(i), the machinery, apparatus and parts thereof for use in producing unrefined oil from shales are qualified by the phrase "of a class or kind not made in Canada" and motive power is excluded from the item. The Machinery & Equipment Manufacturers' Association of Canada proposed no change in this part of item 410c and they proposed that 410c(ii) should also be qualified by the words "of a class or kind not made in Canada".

The operations referred to in this item are still in the experimental stage; they hold important potential benefits for Canada once commercial production is possible. The Board considers that, at least while these operations are in the experimental stage, all machinery and apparatus for these purposes should be free of duty from all countries, without qualification. The recommended item therefore is not restricted by the phrase, "of a class or kind not made in Canada" nor does it exclude motive power.

Recommended Item VI

VI Materials for use in the manufacture of the goods specified in tariff items I(b), I(e)(ii), II(ii), IV(ii) and V

Free

Free

Free

Item VI would replace, in part, items 848b and 1059 by providing for duty-free entry of materials used in the manufacture of certain machinery and apparatus for which duty-free entry is being recommended. Canadian manufacturers attempting to produce such machinery and apparatus before they are made in sufficient quantities to qualify for protection should not be burdened with the cost of duties on the component materials.

NOTES ON EXISTING ITEMS

relating to oilfield equipment

Existing Item 399a

399a
(in part)

... sucker rods, pony rods, polished rods and couplings therefor; seismograph drilling bits, in sizes three and one-half inches to four and three-quarter inches inclusive; all of the foregoing for use in connection with natural gas or oil wells

5 p.c.

10 p.c.

20 p.c.

Only those articles in item 399a which are referred to in the above description were referred to the Tariff Board in Reference 130. In its recommendations the Board is deleting these articles from item 399a.

"Sucker rods, pony rods, polished rods, and couplings therefor" are listed eo nomine in recommended item I(a) which bears the same rates of duty as existing item 399a. The Board understands that at the present time Canada's requirements of these articles are supplied almost entirely by Canadian production.

Seismograph drilling bits in the sizes referred to in 399a are covered along with other bits and drills in the second volume of this Report.

Existing Item 399c

399c Materials for use in the manufacture of the goods specified in tariff items 399a and 399b

Free

Free

Free

This item is before the Board only in so far as it provides for materials used in the manufacture of the articles entered under that portion of existing item 399a which is under review in Reference 130 (see above).

Upon deletion of sucker rods, pony rods, polished rods and their couplings from existing item 399a, the materials used in their manufacture would no longer qualify for entry under item 399c. The Board considers that a special provision for these materials is no longer necessary; accordingly, the materials would be entered under tariff items normally applicable to them.

In so far as materials used in the manufacture of seismograph drilling bits are concerned, these will be considered together with the bits in Volume 2 of this Report.

Existing Item 410b

410b
(in part)

... machinery and apparatus for use in the distillation or recovery of products from coal tar or gas; parts of the foregoing, not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel

Free

10 p.c.

12½ p.c.

Machinery and apparatus for use in natural gas processing plants have been admitted under this item.

On the basis of imports between October 1959 and September 1960, it is estimated that approximately 85 to 90 per cent of recent imports under item 410b have been for natural gas processing. The total value of imports under the item has varied considerably, presumably with the construction of natural gas processing plants; in 1957 and 1958 total imports were valued at over \$6 million, in 1959 and 1960 they were about \$2 million, and in 1961 over \$5 million.

The Board's recommended item IV would cover such imports for natural gas processing plants. When of a class or kind made in Canada, the rates recommended, British preferential 5 p.c. and most-favoured-nation 15 p.c. represent an increase of 5 p.c. in each case; when of a class or kind not made, the Board recommends duty-free entry, which would mean a reduction of 10 p.c. in the Most-Favoured-Nation Tariff. In recent years, practically all imports have come from the United States.

The item in so far as it relates to coal tar and coal gas, will be reviewed also in Volume 2 of this Report.

Existing Item 410c

410c (i) Machinery and apparatus and complete parts thereof for use exclusively in producing unrefined oil from shales, not to include motive power, of a class or kind not made in Canada

Free

Free

Free

(ii) Machinery and apparatus for operating oil-sands by mining operations and for extracting oil from the sands so mined; complete parts of the foregoing

Free

Free

Free

This item would be replaced by recommended item V. The qualifications in part (i), "not to include motive power" and "of a class or kind not made in Canada" do not appear in the recommended item. To this extent the scope of part (i) has been broadened. There has been no change in the scope of part (ii).

Imports under item 410c are not separately recorded. From information received by the Board, however, it appears that imports have not been large and have varied considerably in amount from year to year.

Existing Item 410d

410d Well-drilling machinery and apparatus, and parts thereof, for use in drilling for water, natural gas or oil, or in prospecting for minerals, not including motive power; machinery and apparatus of a class or kind not made in Canada for maintenance and testing purposes in connection with gas or oil wells; well-packers and parts thereof, for oil or gas wells

Free

Free

Free

The Board recommends that this item be deleted.

The well-drilling machinery and apparatus used in drilling for oil, natural gas, potash or rock salt would fall under recommended item I. Those used in drilling for water or in prospecting for minerals will be dealt with in Volume 2 of this Report. Machinery and apparatus of a class or kind not made in Canada for maintenance and testing purposes in connection with gas or oil wells would fall under the appropriate part of item I. Also, well-packers and parts thereof would fall under item I(b). In both cases duty-free entry from all countries would be continued.

Existing Item 410e

410e Rope twenty-one hundred feet and more in length, designed for use in drilling wells two thousand feet and more in depth and four inches or more in diameter, and for use in raising and lowering casing more than four inches in diameter for such wells, for use exclusively in drilling for water, natural gas and oil, and in prospecting for minerals

5 p.c.

5 p.c.

5 p.c.

The Board recommends that this item be deleted.

Wire rope for use in drilling for oil, natural gas, potash or rock salt would fall under recommended item I(a) with an increase of 5 p.c. in the most-favoured-nation rate.

The Board is not recommending any special provision for wire rope used in drilling for water or in prospecting for minerals; the use of wire rope for these purposes is very limited.

Existing Item 848

848 All machinery and apparatus and parts thereof (including motive power) and drilling mud, for use in exploratory or discovery work in connection with, and development, depletion and production of petroleum or natural gas wells

Free

Free

Free

This item would be replaced by recommended items I, II and III with the exception of drill bits, for which recommendations will appear in the second volume of this Report.

As explained in the notes on recommended items I, II and III, the tariff structure recommended by the Board would provide a moderate degree of protection for machinery, apparatus and parts which the Board considers to be used in sufficient quantities to warrant their manufacture in Canada; on all other machinery and apparatus the Board recommends continued duty-free entry.

Imports under tariff items 848, 848a, 848b, and some of those under items 399a and 410d are all lumped together in the same statistical class by the Dominion Bureau of Statistics. Nevertheless, it is safe to say that imports under item 848 account for the bulk of the imports reported in this class, which rose in total fairly steadily between 1947 and 1956 from less than \$10 million to over \$70 million. In recent years they have levelled off between \$35 and \$40 million per annum. Details of these imports are not recorded but, based on an examination of invoices valued at \$1,000 or over, it is estimated that the total imports of \$35.8 million in 1960 were made up as follows:

\$ Millions

Drilling rigs and equipment other than bits	13
Drilling bits	11
Pumps	3
Wellhead equipment	1½
Valves	1¼
Cementing and perforating equipment	1
Gas and oil treating equipment and storage tanks	1
Miscellaneous	4

Drilling rigs and related equipment apart from bits account for over one third of the imports in the statistical class; these articles are covered in recommended item I. Gas and oil treating equipment and bolted storage tanks are included in the list of articles specifically named in item II. The remaining articles in the list would fall almost entirely in item I, apart from drilling bits which are not dealt with in this volume of the Report.

Existing Item 848a

848a Machinery and apparatus and parts thereof (including motive power) of a class or kind not made in Canada and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

Free

Free

Free

When of a class or kind not made in Canada, machinery and apparatus for use in exploration and development of potash mines now are entered under this item free of duty. Since potash is used chiefly as a fertilizer, articles entering into its manufacture may also qualify, whether or not they are of a class or kind made in Canada, for entry under tariff item 663b. This latter item provides duty-free entry for "Articles which enter into the cost of the manufacture of fertilizers, when imported for use exclusively in the manufacture of fertilizers".

Recommended item I provides for well-drilling machinery and apparatus for use not only in the petroleum industry but also for use in mining potash and rock salt. Goods now entered in 848a are of a class or kind not made in Canada, and would presumably fall under recommended item I(e)(ii) unless they are specifically named in item I.

If they are so named, in most instances they would retain their duty-free status. Drilling mud would continue to enter duty-free under recommended item III.

A change in wording in the recommended description, by which "deposits" is substituted for the word "mines" now used in 848a, is intended to ensure that well-drilling equipment for operating potash deposits by the method of brining would fall within the scope of item I.

Equipment now entered under 848a used in the production of potash and rock salt other than well-drilling machinery and apparatus will be dealt with in the second volume of the Report.

Existing Item 848b

848b Materials for use in the manufacture of the goods specified in tariff items 848 and 848a

Free

Free

Free

The Board is recommending that this item be deleted.

Recommended item VI makes provision for duty-free entry of materials for use in the manufacture of oilfield equipment falling within certain other duty-free recommended items, while recommended item III continues provision for duty-free entry of materials used in the manufacture of drilling mud and additives; to this extent, recommended items III and VI would replace existing item 848b.

The Board considers that the rates of duty it is recommending on oilfield equipment "of a class or kind made in Canada" should, in most cases at any rate, remove the need for free entry of the materials used to make such goods; in cases where this is not so, the Board recommends that consideration be given to the introduction of a temporary tariff item under the provisions of Section 273 of the Customs Act.

Existing Item 1047

1047 Materials.

When used in the manufacture of articles
enumerated in tariff item 410e 99 p.c.

The Board recommends that this drawback item be deleted.

The Board has also recommended the deletion of item 410e and an increase of 5 percentage points in the most-favoured-nation duty on wire rope used in drilling for oil and natural gas. In view of the increase in duty, the Board considers that the provisions of this drawback item would no longer be necessary; indeed, no drawbacks have been paid under item 1047 since 1958, and prior to that date they were not large.

Existing Item 1059

1059 Materials.

When used in the manufacture of articles
entitled to entry under tariff items 410b
and 410z when such articles are used as
specified in said items 70 p.c.

In its recommendations, the Board is proposing that machinery and apparatus for natural gas plants, which have been entered under 410b, be provided for in recommended item IV. The Board considers that the rates of duty proposed for part (i) of that item are such that no drawback of duty on materials used in the manufacture of these articles is necessary; accordingly, the Board recommends that item 1059 should not apply to recommended item IV. Materials used in the manufacture of the machinery and apparatus provided for under part (ii) of item IV, would enter duty-free under recommended item VI.

APPENDIX A

THE TARIFF ITEMS AND THEIR HISTORY

(From May 2, 1930)

Tariff Item 399a

Pipes or tubes of iron or steel, commonly known as "oil-country goods", being casing or tubing and fittings or couplings therefor; sucker rods, pony rods, polished rods and couplings therefor; seismograph drilling bits, in sizes three and one-half inches to four and three-quarter inches inclusive; all of the foregoing for use in connection with natural gas or oil wells

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1960, April 1 <u>Added:</u> seismograph drilling bits, in sizes three and one-half inches to four and three-quarter inches inclusive; Previously classified under item 848 (see below)			
1959, April 10 <u>Added:</u> sucker rods, pony rods, polished rods and couplings therefor; all of the foregoing ... Previously classified under item 848 (see below)			
1958, June 18 (Introduced) Previously classified under item 848 (see below)	5 p.c.	10 p.c.	20 p.c.

Tariff Item 399c

Materials for use in the manufacture of the goods specified in tariff items 399a and 399b

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1958, June 18 (Introduced) Previously classified under various items according to material	Free	Free	Free

Tariff Item 410b

Machinery and apparatus for use in washing or dry cleaning coal at coal mines or coke plants; machinery and apparatus for use in producing coke and gas; machinery and apparatus for use in the distillation or recovery of products from coal tar or gas; parts of the foregoing, not including motive power, tanks for gas; valves ten and one-half inches or less in diameter, nor pipes of iron or steel

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1937, February 26 (U.K. Agreement)	Free		
1930, May 2	7½ p.c.	10 p.c.	12½ p.c.

Tariff Item 410c(i)

Machinery and apparatus and complete parts thereof for use exclusively in producing unrefined oil from shales, not to include motive power, of a class or kind not made in Canada

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1930, May 2	Free	Free	Free

Tariff Item 410c(ii)

Machinery and apparatus for operating oil-sands by mining operations and for extracting oil from the sands so mined; complete parts of the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1942, June 24 (Introduced) Previously classified under various items according to the nature and material	Free	Free	Free

Tariff Item 410d

Well-drilling machinery and apparatus, and parts thereof, for use in drilling for water, natural gas or oil, or in prospecting for minerals, not including motive power; machinery and apparatus of a class or kind not made in Canada for maintenance and testing purposes in connection with gas or oil wells; well-packers and parts thereof, for oil or gas wells

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1958, June 18 <u>Deleted:</u> seamless iron or steel tubing of a class or kind not made in Canada, for use in casing water, natural gas or oil wells Subsequently classified under items 397, 397a or 399a			
1941, April 30 <u>Added:</u> machinery and apparatus of a class or kind not made in Canada for maintenance and testing purposes in connection with gas or oil wells;			

(Cont'd)

B.P.M.F.N.General

1937, February 26

Deleted: "of a class or kind not made in Canada" provision
from: Well-drilling machinery and apparatus and complete parts thereof

Deleted: seamless iron or steel tubing over eight inches in diameter

Continued to be classified under this item as "apparatus", when for use in drilling

Added: seamless iron or steel tubing of a class or kind not made in Canada, for use in casing water, natural gas or oil wells

1936, May 2

Deleted: packer rubbers for oil and gas wells

Added: well packers and complete parts thereof, for oil and gas wells

1934, April 1

Added: packer rubbers for oil and gas wells

1931, June 2

Changed: seamless iron or steel tubing over four inches in diameter to seamless iron or steel tubing over eight inches in diameter

1930, May 2

Well-drilling machinery and apparatus, and complete parts thereof, of a class or kind not made in Canada, seamless iron or steel tubing over four inches in diameter for use exclusively in drilling for water, natural gas and oil, and in prospecting for minerals, not to include motive power

Free

Free

Free

Tariff Item 410e

Rope twenty-one hundred feet and more in length, designed for use in drilling wells two thousand feet and more in depth and four inches or more in diameter, and for use in raising and lowering casing more than four inches in diameter for such wells, for use exclusively in drilling for water, natural gas and oil, and in prospecting for minerals

B.P. M.F.N. General

1937, February 26

Deleted: Well-drilling machinery and apparatus and complete parts thereof, and ...
Subsequently classified under item 410d (see above)

1930, May 2

5 p.c. 5 p.c. 5 p.c.

Tariff Item 848

All machinery and apparatus and parts thereof (including motive power) and drilling mud, for use in exploratory or discovery work in connection with, and development, depletion and production of petroleum or natural gas wells

B.P. M.F.N. General

1958, June 18

Deleted: sub-items (1), (2), (3) and (4) and substituted present wording
Subsequently classified as follows:

- (1) under 848, 399a or 399b
- (2) under 848a
- (3) under 397 or 397a
- (4) under 848b

1954, April 7

Changed sub-item (2) to read:
(2) Machinery and apparatus and parts thereof (including motive power) of a class or kind not made in Canada and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

(Cont'd)

B.P.M.F.N.GeneralAdded:

(3) Seamless, lapwelded and electric welded iron or steel casing, tubing and drill pipe, of a class or kind not made in Canada, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

(4) Materials for use in the manufacture of the goods enumerated in (1), (2) and (3) of this item

1952, April 9

Deleted water wells from the end-use provision

Added:

(2) Materials for use in the manufacture of the goods enumerated in tariff item 848(1)

1948, May 19

Deleted rope from: (including motive power and rope)

1944, January 1

Added: drilling mud

1943, February 1 (Introduced)

Free

Free

Free

All machinery and apparatus and parts thereof (including motive power and rope) for use exclusively in exploratory or discovery work in connection with, and development, depletion and production of petroleum, natural gas or water wells, or in prospecting for minerals; seamless, lapwelded and electric welded iron or steel casing, tubing and drill pipe for use in connection with water, natural gas or oil wells
Previously classified under various items according to the nature and material

Tariff Item 848a

Machinery and apparatus and parts thereof (including motive power) of a class or kind not made in Canada and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1958, June 18 (Introduced) Previously provided for in part (2) of item 848 (see above)	Free	Free	Free

Tariff Item 848b

Materials for use in the manufacture of the goods specified in tariff items 848 and 848a

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1958, June 18 (Introduced) Previously provided for in part (4) of item 848 (see above)	Free	Free	Free

Item 1047

Materials. When used in the manufacture of articles enumerated in tariff item 410e

Drawback

1930, May 2

99 p.c.

Item 1059

Materials. When used in the manufacture of articles entitled to entry under tariff items 410b and 410z when such articles are used as specified in said items

Drawback

1930, May 2

70 p.c.

APPENDIX BGENERAL STATISTICS

- Table 1 Canadian Production of Crude Petroleum, by Provinces,
1947 to 1961
- 2 Canadian Production of Natural Gas, by Provinces,
1947 to 1961
- 3 Contract Drilling for Petroleum and Natural Gas,
by Method and by Area, 1946 to 1960
- 4 Principal Statistics of Firms Engaged in Contract
Drilling, 1946 to 1960
- 5 Imports of Well-drilling Machinery, tariff items
399a, 410d, 848, 848a and 848b, statistical
class 5482, years 1939 and 1947 to 1961
- 6 Imports of Well-drilling Machinery, by Province
of Entry, 1955 to 1960
- 7 Imports of Drilling Mud, tariff items 848 and 848a,
statistical class 7305, years 1960 and 1961
- 8 Imports of Wire Rope, tariff item 410e, statistical
class 5223, years 1939 and 1947 to 1961
- 9 Imports of Coal, Coke and Gas Machinery, tariff item
410b, statistical class 5527, years 1939 and
1947 to 1961
- 10 Imports under Tariff Item 410b, by Estimated End-use,
October, 1959 to September, 1960

Table 1

CANADIAN PRODUCTION OF CRUDE PETROLEUM, BY PROVINCES

1947 to 1961

(1,000)

Year	N.B.		Ont.		Man.		Sask.		Alta.		B.C.		N.W.T.		TOTAL	
	bbls.	\$	bbls.	\$	bbls.	\$	bbls.	\$	bbls.	\$	bbls.	\$	bbls.	\$	bbls.	\$
1947	23	32	131	350	-	-	540	614	6,770	18,079	-	-	227	500	7,692	19,576
1948	21	30	177	608	-	-	849	977	10,889	35,128	-	-	351	677	12,287	37,419
1949	20	27	261	901	-	-	782	837	20,087	59,000	-	-	156	353	21,305	61,118
1950	17	24	251	892	-	-	1,041	1,135	27,548	82,216	-	-	187	353	29,044	84,620
1951	16	22	197	678	11	26	1,249	1,659	45,915	113,870	-	-	227	400	47,616	116,655
1952	14	20	192	641	105	229	1,697	2,256	58,916	139,512	-	-	314	379	61,237	143,038
1953	15	21	300	995	654	1,715	2,798	3,833	76,816	193,762	-	-	317	257	80,899	200,582
1954	13	18	412	1,392	2,148	5,620	5,423	8,183	87,714	228,319	-	-	370	345	96,080	243,877
1955	13	18	526	1,599	4,146	9,618	11,317	18,318	113,035	274,901	-	-	404	1,186	129,440	305,640
1956	17	23	593	1,958	5,787	13,633	21,077	36,253	143,910	353,629	148	302	449	763	171,981	406,562
1957	19	27	624	2,160	6,090	15,468	36,861	79,325	137,492	355,555	341	764	421	295	181,848	453,594
1958	15	21	778	2,623	5,829	14,416	44,626	96,705	113,278	283,263	512	1,022	457	698	165,496	398,748
1959	14	20	1,002	3,194	5,056	11,620	47,442	97,732	129,967	306,918	866	1,583	430	1,026	184,778	422,093
1960	14	20	1,005	3,150	4,764	10,690	51,908	103,957	130,507	302,841	867	1,627	469	641	189,534	422,926
1961	12	17	1,149	3,547	4,480	10,156	55,860	115,720	157,812	355,531	1,018	1,860	517	730	220,848	487,560

Source: Dominion Bureau of Statistics.

Table 2

CANADIAN PRODUCTION OF NATURAL GAS, BY PROVINCES^(a)

1947 to 1961

(In millions of cubic feet and thousands of dollars)

Year	N.B.		Ont.		Sask.		Alta.		B.C.		N.W.T.		TOTAL	
	cu.ft.	\$	cu.ft.	\$	cu.ft.	\$	cu.ft.	\$	cu.ft.	\$	cu.ft.	\$	cu.ft.	\$
1947	490	280	7,786	5,335	274	69	44,107	7,746	-	-	-	-	52,657	13,430
1948	420	287	8,590	6,958	477	48	48,965	8,324	-	-	150	15	58,603	15,633
1949	375	147	8,024	8,827	813	81	51,180	2,559	-	-	65	7	60,457	11,620
1950	362	215	8,009	3,204	814	72	58,604	2,930	-	-	33	13	67,822	6,433
1951	262	194	8,443	3,377	860	86	69,877	3,494	-	-	19	8	79,461	7,159
1952	202	150	8,302	3,321	1,007	101	79,150	5,936	-	-	25	10	88,686	9,518
1953	177	131	9,709	3,884	1,422	128	89,652	6,724	-	-	26	10	100,986	10,877
1954	183	136	10,016	4,006	3,333	292	107,174	8,038	-	-	29	10	120,735	12,482
1955	187	138	10,853	4,341	6,707	637	133,007	9,976	-	-	19	6	150,772	15,099
1956	190	141	12,812	4,740	9,808	981	146,134	10,960	188	20	21	7	169,153	16,850
1957	176	157	14,401	5,328	13,994	1,369	183,141	13,736	8,275	367	19	6	220,007	20,963
1958	124	197	16,148	5,975	18,820	1,882	239,050	20,080	63,638	3,915	24	8	337,804	32,058
1959	118	188	16,839	6,517	33,613	3,328	297,569	24,996	69,129	4,558	67	23	417,335	39,609
1960	99	152	16,987	6,574	36,572	3,723	383,683	34,149	85,592	7,587	40	12	522,972	52,197
1961	96	143	14,544	5,614	37,193	4,050	500,844	48,882	103,019	9,715	42	17	655,738	68,422

(a) Net production only; does not include flared gas and other waste.

Source: Dominion Bureau of Statistics.

CONTRACT DRILLING FOR PETROLEUM AND NATURAL GAS, (a)
BY METHOD AND BY AREA, 1946 to 1960

A. ROTARY DRILLING

Year	Western Canada			Eastern Canada			TOTAL CANADA
	Alta.	Sask.	Th o u s a n d	Ont.	Other	Total	
1946	197	99	-	-	-	-	297
1947	825	142	3	-	-	-	969
1948	1,708	105	16	-	-	-	1,829
1949	3,117	86	7	-	-	-	3,210
1950	3,341	124	17	-	-	-	3,482
1951	4,728	232	360	-	-	-	5,319
1952	6,603	1,237	263	-	-	-	8,103
1953	7,245	2,462	405	-	28	28	10,139
1954	6,506	2,041	999	18	45	63	9,609
1955	8,827	2,796	1,082	7	-	7	12,712
1956	10,477	4,003	929	15	1	16	15,424
1957	7,054	4,008	1,026	22	16	38	12,126
1958	8,917	3,266	775	40	*	40	12,998
1959	9,648	2,191	1,150	37	1	38	13,027
1960	9,906	2,007	1,582	43	-	43	13,539

(a) Does not include the relatively small amounts of drilling done by oil and gas companies with own equipment.

(Cont'd)

Table 3
(Concluded)

B. CABLE-TOOL DRILLING

Year	Western Canada	Eastern Canada			Total	F e e t	TOTAL CANADA
		Ontario	a n d	Other			
	T h o u s a n d s	o f					
1946	17	247	11	258		274	
1947	11	252	21	273		284	
1948	8	306	11	317		325	
1949	12	303	12	315		326	
1950	11	286	11	297		308	
1951	622	280	16	296		918	
1952	4	316	32	347		352	
1953	266	337	23	360		626	
1954	5	444	8	452		457	
1955	4	330	10	340		344	
1956	5	366	6	372		377	
1957	1	314	54	368		369	
1958	169	248	29	277		446	
1959	9	264	45	309		318	
1960	11	197	23	220		232	

Source: Dominion Bureau of Statistics.

Table 4

PRINCIPAL STATISTICS OF FIRMS ENGAGED IN CONTRACT DRILLING
1946 to 1960

<u>Year</u>	<u>Number of</u>		<u>Number of Rigs</u>		<u>Salaries and Wages</u> \$'000	<u>Gross Income</u> \$'000
	<u>Firms</u> No.	<u>Employees</u> No.	<u>Rotary</u> No.	<u>Cable</u> No.		
1946	56	485	..	..	820	2,536
1947	62	1,020	..	..	2,064	7,484
1948	68	1,598	..	..	3,957	15,644
1949	84	2,039	..	..	6,294	23,720
1950	72	2,254	..	..	7,339	23,429
1951	101	3,620	181	79	13,050	42,988
1952	143	4,679	243	89	18,132	61,216
1953	140	4,903	299	106	19,849	59,663
1954	132	4,559	296	91	18,122	58,824
1955	117	4,901	296	73	22,328	68,349
1956	118	5,793	344	70	28,834	93,257
1957	115	5,468	328	71	25,745	75,633
1958	105	5,261	333	62	24,080	69,345
1959	109	4,734	342	69	21,423	63,816
1960	94	4,860	352	46	23,157	75,241

Source: Dominion Bureau of Statistics.

Table 5

IMPORTS: Well-drilling machinery and apparatus, and parts, for use in drilling for water, natural gas or oil, or in prospecting for minerals; machinery and apparatus of a class or kind not made in Canada, for maintenance and testing purposes in connection with gas or oil wells; well-packers and parts, for oil or gas wells; materials, not mentioned elsewhere, for the manufacture of the foregoing, s.c. 5482(a)

Tariff items 399a, ^(b) 410d, 848, 848a and 848b

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as Per Cent of</u> <u>Dutiable Value</u>
<u>1. Total</u>			
1939	2,145	-	-
1947	7,054	-	-
1948	15,389	-	-
1949	23,917	-	-
1950	20,782	-	-
1951	37,375	-	-
1952	43,478	-	-
1953	33,745	-	-
1954	31,130	-	-
1955	44,819	-	-
1956	73,286	-	-
1957	51,647	-	-
1958	37,426	-	-
1959	38,304	-	-
1960	35,834	48	10.0
1961	34,653	37	9.6
<u>2. United Kingdom</u>			
1939	38	-	-
1947	-	-	-
1948	-	-	-
1949	-	-	-
1950	30	-	-
1951	199	-	-
1952	280	-	-
1953	167	-	-
1954	255	-	-
1955	602	-	-
1956	557	-	-
1957	875	-	-
1958	179	-	-
1959	300	-	-
1960	446	-	-
1961	416	2	5.0

(Cont'd)

Table 5
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as Per Cent of</u> <u>Dutiable Value</u>
<u>3. United States</u>			
1939	2,098	-	-
1947	6,883	-	-
1948	15,389	-	-
1949	23,917	-	-
1950	20,748	-	-
1951	37,105	-	-
1952	43,029	-	-
1953	33,565	-	-
1954	30,767	-	-
1955	44,191	-	-
1956	72,388	-	-
1957	50,502	-	-
1958	37,017	-	-
1959	37,957	-	-
1960	35,356	48	10.0
1961	34,181	36	10.0

(a) Prior to 1960, included imports of drilling mud and additives.
Since January, 1960, bentonite is being classified as "Drilling mud" under statistical class 7305 (Table 7), while the other mud additives are classified according to material.

(b) Beginning April 1, 1960; seismograph drilling bits only.

Source: Dominion Bureau of Statistics.

Table 6

IMPORTS OF WELL-DRILLING MACHINERY BY PROVINCE OF ENTRY^(a)
 1955 to 1960
 (\$'000)

<u>Province</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
N.S.	11	38	27	45	154	25
P.E.I.	-	*	*	1	*	*
N.B.	148	22	45	119	132	16
Que.	46	109	256	155	123	129
Ont.	1,253	1,582	1,713	1,341	1,462	1,222
Man.	2,160	1,595	999	206	123	62
Sask.	6,016	13,246	10,750	6,788	4,835	3,583
Alta.	34,584	56,034	37,320	28,641	30,503	30,691
B.C.	589	653	536	129	971	86
Yukon	4	-	-	-	-	10
Nfld.	7	7	1	*	*	9
TOTAL	44,819	73,286	51,647	37,426	38,304	35,834

(a) Includes imports under statistical class 5482, which is described in full in Table 5. The province of entry is the province in which the goods were cleared through customs; it is not necessarily the province of final consumption.

Source: Dominion Bureau of Statistics.

Table 7

IMPORTS: Drilling mud,^(a) s.c. 7305

Tariff items 848 and 848a

<u>Year</u>	<u>Hundredweight</u>	<u>Dollars</u>
1960 ^(b)	323,810	493,105
1961	284,488	364,252

(a) Chiefly bentonite; all imports are from the United States.

(b) Prior to January 1960, classified under statistical class 5482 (Table 5).

Source: Dominion Bureau of Statistics.

Table 8

IMPORTS: Wire rope twenty-one hundred feet and more in length, designed for use in drilling wells two thousand feet and more in depth, and four inches or more in diameter, and for use in raising and lowering casing more than four inches in diameter for such wells; for use exclusively in drilling for water, natural gas and oil, and in prospecting for minerals, s.c. 5223

Tariff item 410e

<u>Year</u>	<u>Volume</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as Per Cent of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	6,321	..	316	5.0
1947	..	23,842	..	-	-
1948	..	35,423	..	1,078	5.0
1949	..	33,669	..	1,683	5.0
1950	..	6,999	..	350	5.0
1951	..	74,021	..	3,701	5.0
1952	..	223,702	..	11,185	5.0
1953	..	128,196	..	6,410	5.0
1954	..	118,667	..	5,931	5.0
1955	..	246,001	..	12,300	5.0
1956	..	237,812	..	11,891	5.0
1957	..	127,665	..	6,383	5.0
1958	8,073	151,042	18.71	7,552	5.0
1959	2,408	36,824	15.29	1,841	5.0
1960	6,373	92,040	14.44	4,603	5.0
1961	5,360	76,906	14.35	3,857	5.0
<u>2. United Kingdom</u>					
1939	..	4,116	..	206	5.0
1947	..	-	..	-	-
1948	..	-	..	-	-
1949	..	-	..	-	-
1950	..	6,175	..	309	5.0
1951	..	5,050	..	252	5.0
1952	..	14,319	..	716	5.0
1953	..	-	..	-	-
1954	..	-	..	-	-
1955	..	15,143	..	757	5.0
1956	..	6,434	..	322	5.0
1957	..	40,368	..	2,018	5.0
1958	2,069	31,199	15.08	1,560	5.0
1959	196	3,099	15.81	155	5.0
1960	157	2,459	15.66	123	5.0
1961	-	-	-	-	-

(Cont'd)

Table 8
(Concluded)

<u>Year</u>	<u>Volume</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as Per Cent of</u> <u>Dutiable Value</u>
<u>3. United States</u>					
1939	..	2,205	..	110	5.0
1947	..	23,842	..	-	-
1948	..	35,423	..	1,078	5.0
1949	..	33,669	..	1,683	5.0
1950	..	824	..	41	5.0
1951	..	68,971	..	3,449	5.0
1952	..	209,383	..	10,469	5.0
1953	..	124,469	..	6,224	5.0
1954	..	110,088	..	5,502	5.0
1955	..	221,600	..	11,080	5.0
1956	..	173,708	..	8,685	5.0
1957	..	42,770	..	2,138	5.0
1958	3,451	84,418	24.46	4,221	5.0
1959	150	4,294	28.63	215	5.0
1960	-	-	-	-	-
1961	87	2,604	29.93	142	5.5
<u>4. Japan</u>					
1939	-	-	-	-	-
1947-56	-	-	-	-	-
1957	..	12,351	..	618	5.0
1958	2,153	28,876	13.41	1,444	5.0
1959	2,062	29,431	14.27	1,471	5.0
1960	6,216	89,581	14.41	4,480	5.0
1961	5,273	74,302	14.09	3,715	5.0

Source: Dominion Bureau of Statistics.

Table 9

IMPORTS: Coal, coke and gas machinery, as enumerated in tariff item
410b. and parts, s.c. 5527

Tariff item 410b

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as Per Cent of</u> <u>Dutiable Value</u>
<u>1. Total</u>			
1939	156	6	10.0
1947	1,024	96	10.0
1948	820	75	10.0
1949	332	32	10.0
1950	387	36	10.0
1951	1,314	128	10.0
1952	1,096	109	10.0
1953	1,836	183	10.0
1954	1,061	106	10.0
1955	1,014	101	10.0
1956	2,128	212	10.0
1957	6,276	627	10.0
1958	6,932	693	10.0
1959	2,477	247	10.0
1960	1,926	191	10.0
1961	5,414	536	10.0
<u>2. United Kingdom</u>			
1939	92	-	-
1947	64	-	-
1948	71	-	-
1949	13	-	-
1950	24	*	10.0
1951	26	-	-
1952	7	-	-
1953	8	-	-
1954	3	-	-
1955	5	-	-
1956	6	-	-
1957	5	-	-
1958	4	-	-
1959	10	-	-
1960	13	-	-
1961	56	-	-

(Cont'd)

Table 9
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as Per Cent of</u> <u>Dutiable Value</u>
<u>3. United States</u>			
1939	63	6	10.0
1947	960	96	10.0
1948	748	75	10.0
1949	319	32	10.0
1950	363	36	10.0
1951	1,288	128	10.0
1952	1,089	109	10.0
1953	1,829	183	10.0
1954	1,058	106	10.0
1955	1,009	101	10.0
1956	2,122	212	10.0
1957	6,271	627	10.0
1958	6,928	693	10.0
1959	2,466	247	10.0
1960	1,912	191	10.0
1961	5,358	536	10.0

Source: Dominion Bureau of Statistics.

Table 10

IMPORTS UNDER TARIFF ITEM 410b, BY ESTIMATED END-USE^(a)
October, 1959 to September, 1960

	<u>Dollars</u>	<u>Per Cent of Total</u>
Destined for use in:		
Natural gas processing plants	1,444,997	88.9
Coal mines and coke plants	170,669	10.5
Not classifiable	9,752	.6
	<hr/>	<hr/>
TOTAL	1,625,418	100.0

(a) Based on an examination of all invoices valued at \$2,000 or more, and of every fifth invoice valued at less than \$2,000, during the twelve-month period from October, 1959 to September, 1960. The total value of the invoices examined was \$1,426,145, or 87.7 per cent of actual imports.

Source: Compiled by the Tariff Board.

APPENDIX CEQUIPMENT FOR A NATURAL GAS PROCESSING PLANT^(a)

- (a) Based on actual procurements of equipment for the Rimbey, Alberta, natural gas processing plant. Figures in brackets denote the number of units used. One asterisk (*) indicates that the equipment was obtained from Canadian suppliers, but was actually manufactured in the United States. Two asterisks (**) indicate that the equipment was purchased directly from suppliers in the United States. The remaining equipment was manufactured in Canada.

Source: The British American Oil Co. Ltd.

BOILERS

High pressure boilers (3)
Sulphur boilers (2)

COMPRESSORS & BLOWERS

*Propane refrigerant compressors (2)
*Recompressor
*Instrument and utility air compressors (3)
Sulphur unit air blowers (2)

VESSELS, TANKS & DRUMS

Stabilizer feed drum
Amine surge drum
Rich amine flash drum
Stabilizer reflux drum
Stabilizer overhead receiver
Glycol surge drum
Propane suction drum
Propane receiver
Fuel gas drum
Caustic storage drum
Soda ash injection pot
De-ethanizer feed drum
Water draw-off drum
De-ethanizer reflux drum
De-propanizer reflux drum
De-butanizer reflux drum
Dump liquid separator
Propane flash drums (2)
Amine sump tank
Instrument air drums (4)
Recompressor suction drum
Steam condensate sump tank
Inlet gas separators (2)
Glycol flash drum
Boiler blow-down drum
Instrument air receiver
Boiler feed water tank
Pure amine storage drum
Treated water storage tank
Fire water storage tank
Caustic mix drum
Glycol sump tank
Acid gas knock-out drum
Water draw-off drum
Sulphur converters (2)
Gasoline storage tanks (2)
Glycol separators (2)
Fuel gas knock-out drum

HEAT EXCHANGERS

Condensate de-methanizer re-boilers (4)
Gas exchangers (4)
Gas chillers (2)
Low temperature stripper re-boilers (2)

HEAT EXCHANGERS (cont'd)

- **Hydrocarbon coolers (2)
 - Flare gas heaters (2)
- **Amine coolers (4)
 - Amine exchangers (4)
 - Amine re-boilers (4)
- **Amine still condensers (4)
 - Amine purifiers (2)
 - Amine surge tank heater
 - De-ethanizer feed gasoline exchanger
- **Stabilizer reflux condensers (2)
 - Stabilizer overhead exchanger
 - Stabilizer overhead condenser
 - Glycol re-generators (2)
 - Glycol exchangers (2)
- **Propane refrigerant condenser
 - Dump liquid separator heating coil
- **Steam condensate cooler
- **Stabilizer net overhead cooler
 - Stabilizer overhead heater
 - Low temperature glycol exchanger
- **Stabilizer condensate cooler
 - De-ethanizer re-boiler
 - De-ethanizer feed condensate exchanger
 - De-ethanizer reflux condenser
 - De-propanizer re-boiler
- **De-propanizer overhead condenser
 - De-butanizer re-boiler
- **De-butanizer overhead condenser
 - LPG vaporizer
 - Fuel gas heater
 - Low pressure amine heater
 - Amine storage tank heater
 - Dump liquid heaters (2)
 - De-methanizer bottom coolers (2)
- **Steam condenser
 - Treated water tank heater
 - Fire water tank heater
 - Sulphur condensers (2)
 - Stabilizer re-boilers (2)
 - Steam vent condenser
 - Chemical waste storage tank heater

GENERATOR

- Electric generators (3)

PACKAGE UNITS

- De-aerating BFW heater
- *Amine filter unit
 - Glycol filters (2)
- **Instrument air dryer
 - Hydrogen zeolite tanks (2)
 - Domestic water unit

PUMPS & DRIVERS

- **High pressure amine pumps (3)
 - Low pressure amine pumps (3)
 - Amine sump pumps (2)
 - Hydrocarbon sump pump
 - Amine still reflux pumps (4)
- **High pressure water pump
 - Stabilizer reflux pumps (2)
 - Stabilizer net overhead pumps (2)
- *Glycol pumps (3)
 - Caustic treater pumps (3)
 - Dump liquid separator pump
 - De-ethanizer reflux pumps (2)
 - De-propanizer reflux pumps (2)
 - De-butanizer reflux pumps (2)
- *Fire water pumps (2)
 - Propane loading pump
 - Butane loading pump
 - Butane booster pump
 - Condensate loading pump
 - Boiler feed water pumps (3)
 - Steam condensate return pumps (2)
- *Chemical feed boiler treater pump
 - LPG absorber pumps (3)
 - Raw water pumps (2)
 - Treated water pumps (2)
- *Caustic make-up pump
 - Condensate de-methanizer pumps (3)
- *Amine inhibitor pump
 - Glycol sump pump
 - Chemical waste pump
 - Water treating pumps (2)
 - Chemical waste circulating pump

ADDITIONAL EQUIPMENT

- Acid storage tank
- Mix and measuring tank
- Decarbonator tank
- Chemical waste storage tank
- Boiler and feed water solution tanks (2)

APPENDIX DFINANCIAL STATISTICS

Table 1 Oil and Natural Gas - includes firms engaged chiefly in operating petroleum and natural gas wells.

Table 2 Petroleum Refining and Products - includes firms which in addition to operating petroleum and natural gas wells, also operate natural gas processing plants and refine, distribute and retail petroleum products.

Source: Compiled by the Tariff Board from statistics published by the Department of National Revenue.

OIL AND NATURAL GAS
(Millions of dollars)

	1953	1954	1955	1956	1957	1958	1959	1960 (a)
Fiscal years or taxation years								
Current assets, excluding investments	128.0	118.3	138.6	192.0	173.1	157.2	163.6	127.6
Fixed assets	490.0	599.1	731.8	881.6	959.2	1,092.9	1,191.5	1,178.9
Other assets	232.3	197.7	251.4	400.5	452.7	532.3	583.8	581.8
Total assets before depreciation and depletion, excluding investments	850.3	915.1	1,121.8	1,474.1	1,585.0	1,782.4	1,938.9	1,888.3
Less - accumulated depreciation and depletion	107.1	141.3	172.7	221.6	230.3	288.5	347.1	324.5
Total assets after depreciation and depletion, excluding investments	743.2	773.8	949.1	1,252.5	1,354.7	1,493.9	1,591.8	1,563.8
Add - Investments	188.2	249.4	278.0	322.9	347.3	335.6	364.1	416.5
	931.4	1,023.2	1,227.1	1,575.4	1,702.0	1,829.5	1,955.9	1,980.3
Less - Liabilities	452.5	480.2	604.1	713.8	722.8	726.2	803.0	1,223.5
Net Worth:	478.9	543.0	623.0	861.6	979.2	1,103.3	1,152.9	756.8
consisting of Capital	552.5	608.4	687.4	902.9	971.5	1,101.5	1,147.5	739.7
" " Surplus	(73.6)	(65.4)	(64.4)	(41.3)	7.7	1.8	5.4	17.1
Profit before income tax, depletion, depreciation and write off of mine and oil development(b)	60.1	62.5	72.3	99.1	118.1	102.9	111.7	105.4
Less - Depletion	4.0	4.6	13.8	13.8	15.1	10.3	18.0	5.4
- Depreciation	20.3	22.6	25.3	38.2	39.2	37.8	34.8	26.8
- Write off of mine and oil development	34.3	40.1	37.1	58.3	62.5	65.9	63.9	72.3
Profit before income tax(b)	1.5	(4.8)	(3.9)	(11.2)	1.3	(11.1)	(5.0)	.9
- as per cent of total assets after depreciation and depletion(c)	0.2%				0.1%			0.06%
- as per cent of sales	0.6%				0.3%			0.3%
Add - Income from investments	3.5	4.8	6.3	5.6	4.5	6.5	9.8	10.0
Less - Dominion income tax	4.0	4.1	4.6	7.7	9.6	4.2	4.3	4.5
Profit after income tax	1.0	(4.1)	(2.2)	(13.3)	(3.8)	(8.8)	.5	6.4
- as per cent of net worth	0.2%						0.04%	0.8%
Cash Dividends paid	4.0	5.9	5.9	5.6	5.1	4.1	4.1	3.2
Sales	238.1	297.8	341.8	419.3	411.9	416.5	385.1	322.6
- per \$1.00 of Total assets after depreciation and depletion(c)	32¢	38¢	36¢	33¢	30¢	28¢	24¢	21¢
Number of profit companies	203	192	208	356	194	191	233	93
Number of loss companies	494	480	443	472	515	444	503	396

(a) Beginning in 1960, the "Head Office Account Payable" item appearing on the books of foreign-owned companies is being included with liabilities, rather than with Capital; this accounts for most of the \$400 million decrease in Net Worth.

(b) Excluding income from investments.

(c) Excluding investments.

Table 2

PETROLEUM REFINING AND PRODUCTS
(Millions of dollars)

	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
Fiscal years or taxation years								
Current assets, excluding investments								
Fixed assets	392.1	422.5	466.6	494.4	543.9	557.6	559.8	569.4
Other assets	747.8	909.9	1,003.6	1,208.2	1,399.4	1,603.0	1,739.3	1,892.1
	82.6	81.1	24.9	19.6	19.0	30.9	53.6	65.8
Total assets before depreciation and depletion, excluding investments	1,222.5	1,413.5	1,495.1	1,722.2	1,962.3	2,191.5	2,352.7	2,527.3
Less - accumulated depreciation and depletion	313.4	348.6	405.2	426.3	494.4	547.0	622.5	693.4
Total assets after depreciation and depletion, excluding investments	909.1	1,064.9	1,089.9	1,295.9	1,467.9	1,644.5	1,730.2	1,833.9
Add - Investments	129.2	105.0	236.0	288.1	277.3	366.7	351.1	368.0
	1,038.3	1,169.9	1,325.9	1,584.0	1,745.2	2,011.2	2,081.3	2,201.9
Less - Liabilities	412.4	467.4	490.5	537.2	604.1	698.1	728.6	804.7
Net Worth:	625.9	702.5	835.4	1,046.8	1,141.1	1,313.1	1,352.7	1,397.2
consisting of Capital	278.6	303.5	362.8	533.5	551.7	758.3	703.4	726.4
" " Surplus	347.3	399.0	472.6	513.3	589.4	554.8	649.3	670.8
Profit before income tax, depreciation, depletion and write off of mine and oil development(a)	164.5	190.7	206.1	223.7	228.3	174.1	195.8	252.0
Less - Depletion	5.9	12.5	7.3	33.4	35.2	27.3	28.3	15.3
- Depreciation	57.8	72.0	75.5	78.3	91.7	95.1	89.5	89.0
- Write off of mine and oil development	6.0	7.2	9.3	18.4	10.6	11.9	11.9	46.6
Profit before income tax(a)	94.8	99.0	114.0	93.6	90.8	39.8	66.1	101.1
- as per cent of total assets after depreciation and depletion(b)	10.4%	9.3%	10.5%	7.2%	6.2%	2.4%	3.8%	5.5%
- as per cent of sales	8.1%	6.6%	6.8%	4.2%	5.9%	2.7%	4.1%	6.3%
Add - Income from investments	5.1	3.6	4.4	9.9	11.5	11.1	13.6	15.8
Less - Dominion income tax	45.5	47.1	52.5	44.9	44.0	22.7	35.0	46.9
Profit after income tax	54.4	55.5	65.9	58.6	58.3	28.2	44.7	70.0
- as per cent of net worth	8.7%	7.9%	7.9%	5.6%	5.1%	2.1%	3.3%	5.0%
Cash Dividends paid	32.2	36.8	39.7	50.9	52.7	56.0	56.3	60.6
Sales	1,165.8	1,490.1	1,671.7	2,209.6	1,543.8	1,485.2	1,606.4	1,610.6
- per \$1.00 of Total assets after depreciation and depletion(b)	\$1.28	\$1.40	\$1.53	\$1.71	\$1.05	90¢	93¢	88¢
Number of profit companies	26	22	26	18	28	24	25	19
Number of loss companies	12	15	12	16	11	23	21	12
(a) Excluding income from investments.								
(b) Excluding investments.								



Report by *of the Tariff Board in*
reference

(THE) TARIFF BOARD

(Relative to the Inquiry Ordered

(by the Minister of Finance

respecting

**Machinery and Equipment Used in the Mining
Industry and in the Oil and Gas Industries**

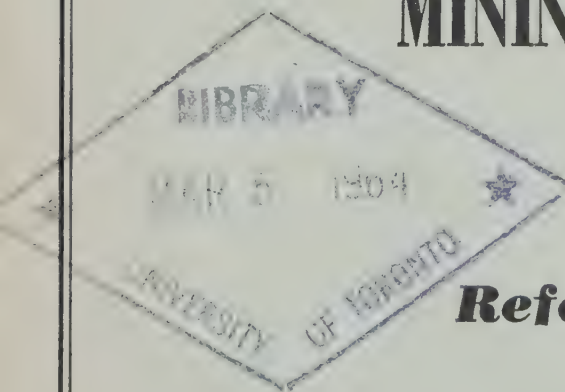
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MINING EQUIPMENT

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Report by
THE TARIFF BOARD

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VOLUME 2
MINING EQUIPMENT

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1963

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Economist: J.W. Morrow, Assistant Director of Research

* Dr. Eldon resigned from the Tariff Board February 1, 1963. However, he participated in the preparation of this Report and the Conclusions and Recommendations have his concurrence.

The Honourable Walter L. Gordon
Minister of Finance
Ottawa

Dear Mr. Gordon:

I refer to Mr. Fleming's letter of July 8, 1960, in which he requested the Tariff Board to conduct an inquiry respecting machinery and equipment used in the mining industry and the oil and gas industries.

In conformity with Section 6 of the Tariff Board Act, I have the honour to transmit Volume 2 of the Report of the Board, in English and French. This volume relates to mining equipment. A copy of the transcript of the proceedings at the public hearings accompanies the Report. The first volume dealt with oilfield equipment.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "J.C. Audette", with a stylized flourish at the end.

~~Chairman~~

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Explanation of Symbols Used

- Denotes nil or zero
- .. Indicates that figures are not available
- * Indicates a reported figure which disappears on rounding
- (a) A small letter in brackets denotes a footnote to a table
- (1) A number in brackets denotes a footnote to the text
- s.c. Denotes an import statistical class

THE TARIFF BOARD

Reference No. 130

An Inquiry Respecting Machinery and Equipment Used in
the Mining Industry and in the Oil and Gas Industries

The letter from the Minister of Finance, dated July 8th, 1960 directing the Tariff Board to conduct an inquiry respecting machinery and equipment used in the mining industry and the oil and gas industries was quoted in full in Volume 1 of this Report. Volume 1 dealt with machinery and equipment used in the oil and natural gas industries.

This volume of the Report deals with machinery and equipment used in the mineral industries other than oil and natural gas. It is concerned with the following tariff items in their entirety:

410a(i)	410j	410q
410a(ii)	410k	410r
410a(iii)	410 l	410s
410a(iv)	410m(1)	410t(1)
410f(1)	410m(2)	410t(2)
410f(2)	410n	410v
410g	410o(i)	410w
410h	410o(ii)	410x
410i(1)	410o(iii)	410y
410i(2)	410p	410z

It is also concerned with the following items:

399a in so far as it relates to seismograph drilling bits

410b in so far as it relates to machinery and apparatus for use in washing and dry cleaning coal at coal mines or coke plants or for use in producing coke and domestic gas or in the distillation or recovery of products from coal tar or domestic gas

410d in so far as it relates to machinery and equipment for use in drilling for water or in prospecting for minerals

848 and 848a except for the well drilling equipment dealt with in Volume 1 of this Report

399c; 442d; 848b; 1056; 1058 and 1059 in so far as they relate to any of the foregoing tariff items or parts of tariff items

Public hearings respecting this part of Reference 130 were held in Ottawa from September 18 to September 22, 1961, inclusive, on September 25, 1961 and on June 20 and 21, 1962.

A list of companies and associations which made representations to the Board follows:

Algoma Steel Corporation Limited, Sault Ste. Marie, Ont.
 Aluminum Company of Canada Limited, Montreal, P.Q.
 American-Standard Products (Canada) Limited, Toronto, Ont.
 Associated Electrical Industries (Canada) Limited, Toronto, Ont.
 Atlas Copco Canada Limited, Dorval, P.Q.
 Atlas Steels Limited, Welland, Ont.
 British Mining Equipment Export Association, London, Eng.
 Calgary Power Limited, Calgary, Alta.
 Canadian Association of Equipment Distributors, Regina, Sask.
 Canadian Automobile Chamber of Commerce, Toronto, Ont.
 Canadian Diamond Drilling Association, Toronto, Ont.
 Canadian Electrical Manufacturers Association, Toronto, Ont.
 Canadian General Electric Company Limited, Toronto, Ont.
 Canadian International Paper Company, Montreal, P.Q.
 Canadian Metal Mining Association, Toronto, Ont.
 Canadian Rock Salt Company Limited, Montreal, P.Q.
 Chemical Developments of Canada Limited, Montreal, P.Q.
 Chemical Industry Committee for Tariff Board Reference 120, Montreal, P.Q.
 Coal Industry of Canada, The, including:
 Dominion Steel and Coal Corporation Limited, Montreal, P.Q.
 Independent Coal Producers of Nova Scotia, Bras d'Or, N.S.
 New Brunswick Coal Producers Association, Minto, N.B.
 Great West Coal Company Limited, Winnipeg, Man.
 Manitoba and Saskatchewan Coal Company Limited, Winnipeg, Man.
 The Coal Operators' Association of Western Canada, Calgary, Alta.
 The Drumheller Coal Operators' Association, Drumheller, Alta.
 Alberta Coal Company, Calgary, Alta.
 Forestburg Collieries Limited, Edmonton, Alta.
 Consolidated Mining and Smelting Company of Canada Limited, Trail, B.C.
 Dominion Foundries and Steel Limited, Hamilton, Ont.
 Dominion Magnesium Limited, Haley, Ont.
 Dominion Steel and Coal Corporation Limited, Montreal, P.Q.
 Dow Chemical of Canada Limited, Sarnia, Ont.
 Eimco Process of Canada Limited, Toronto, Ont.
 G.H. Godsall Equipment Limited, Toronto, Ont.
 Howden, James and Company Limited, Toronto, Ont.
 Hughes Tool Services Limited, Houston, Texas
 Imperial Oil Limited, Toronto, Ont.
 Industrial Instrument Manufacturers Association, Toronto, Ont.
 John Inglis Company Limited, Toronto, Ont.
 Kennametal of Canada Limited, Victoria, B.C.
 Machinery & Equipment Manufacturers' Association of Canada, Montreal, P.Q.

Mid-West Metal Mining Association, Winnipeg, Man.
Mine Equipment Company Limited, Montreal, P.Q.
Mine Safety Appliances Company of Canada Limited, Toronto, Ont.
Mining Association of British Columbia, Vancouver, B.C.
Ontario Metal Mining Association, Toronto, Ont.
Potash Company of America, Saskatoon, Sask.
Quebec Asbestos Mining Association, Thetford Mines, P.Q.
Quebec Metal Mining Association, Quebec, P.Q.
Rubber Association of Canada, The, Toronto, Ont.
Sandvik Canadian Limited, Montreal, P.Q.
Saskatchewan Chamber of Mines, Prince Albert, Sask.
Sherritt-Gordon Mines Limited, Toronto, Ont.
Sicard Incorporated, Montreal, P.Q.
Steel Castings Institute of Canada Limited, Toronto, Ont.
Sheldons Engineering Limited, Galt, Ont.
Steel Company of Canada Limited, The, Hamilton, Ont.
Travis Mud and Chemicals Limited, Calgary, Alta.
Union Carbide Canada Limited, Toronto, Ont.
United Steel Corporation Limited, Toronto, Ont.
Wickman, A.C., Limited, Toronto, Ont.

SECTION 1

THE USERS OF MINING EQUIPMENT AND THEIR SUPPLIERS

This volume of the Report is concerned with the provisions of the Customs Tariff relating to much of the equipment used in the mining and processing of minerals other than petroleum and natural gas. The mineral industries⁽¹⁾ have been spending some \$200 million annually on equipment of all kinds, and a substantial part of it has been of types and for uses encompassed by the tariff items in this part of the Reference; imports under these tariff items have amounted to between \$30 and \$40 million annually in recent years, and to considerably more in years of exceptionally rapid expansion. Canadian manufacturers of industrial machinery and other capital goods sell a significant part of their total output to the mineral industries; they, as well as the mineral industries have important interests in the conditions which are to prevail in the market for mining and mineral processing equipment.

The tariff items dealt with in this volume of the Report, and which are henceforth called the mining equipment schedule, provide for most types of equipment specially designed for mining and mineral processing. In addition a considerable amount of equipment having more general application is encompassed by the end-use provisions in the mining equipment schedule. On the other hand, a good deal of electrical apparatus, instrumentation, surface transport and other equipment of general application used by the mineral industries is outside the scope of the present Reference.

While there have been many changes in the mining equipment schedule down through the years, the last general revision was contained in the budget of May, 1930, and the wording of some of the items can be traced back to 1897. Indeed, there was special provision for mining machinery in the Tariff as early as 1890. Nearly all the items in the mining equipment schedule provide for goods only when they are to be put to particular uses and, for the most part, the goods entered under these items are either free of duty or are dutiable at lower rates than would otherwise be levied on them. Some of the items, such as tariff item 410p, provide for duty-free entry of nearly any kind of machinery or equipment of metal if it is to be put to specified uses. Others, while still discriminating as to use, provide only for named types of highly specialized mining equipment and carry most-favoured-nation rates of duty which vary from free to as high as 25 p.c. Thus, in some of its aspects the mining equipment schedule is preferential or discriminatory in nature; but it also encompasses a generic grouping of mining machinery on which it provides for duties which were presumably regarded as appropriate at the time of enactment.

(1) Throughout this volume the "mineral industries" exclude the petroleum and natural gas industry.

In this Section the mineral industries, their equipment requirements, and the activities of some of their principal Canadian suppliers are described.

The Mineral Industries

Canada's mineral industries are engaged in the mining and processing of a wide range of minerals. Among the larger of the metal mining industries are those engaged in mining nickel, iron ore, copper, gold and uranium. Asbestos, coal, gypsum, salt and potash are among the leading non-metallic minerals mined. The quarrying of stone, sand and gravel comes within the ambit of the present Reference as well. Among the leading processors of minerals are the aluminum industry and the smelters and refiners of other non-ferrous metals. The primary iron and steel industry is also involved in the Reference in so far as it is engaged in processing iron ore up to the stage of pouring steel ingots.

The record of the mineral industries as a whole since 1949 is one of overall growth, some of it spectacular; but there have also been serious reverses. The value of output of iron ore rose from \$21 million in 1949 to \$265 million in 1962 and involved the tapping of resources in hitherto undeveloped regions of the country. Output of copper, nickel and aluminum all rose rapidly over this period, although producers have been faced with marketing problems. The value of output of uranium rose from a small amount in 1949 to a peak of \$331 million in 1959, after which it declined on account of serious marketing problems. The price of gold has remained virtually fixed in terms of United States dollars since the 1930's, and most producers are in receipt of federal subsidies to keep them in operation. The coal mining industry, plagued by high costs and competition from other fuels, shrank considerably in size during the period.

Statistics of the mineral industries relating to output and employment are contained in the following table.

The Mineral Industries, 1960

<u>Industry</u>	<u>Gross Value of Production (\$mil.)</u>	<u>Net Value Added (\$mil.)</u>	<u>Employees (number)</u>
<u>Mining Industries</u>			
Metal Mining	1,004	706	61,882
Non-Metal Mining	182	149	11,206
Coal Mining	75	59	11,587
Stone, Sand and Gravel	97	85	6,856
Total	1,358	999	91,531
<u>Manufacturing Industries</u>			
Primary Iron and Steel	782	394	36,472
Metal Smelting and Refining	1,495	508	29,708
Others	147	110	8,034
Total	2,424	1,012	74,214

Source: Dominion Bureau of Statistics.

Exports of minerals, other than petroleum and natural gas, in raw and partially manufactured form, were valued at 1.5 billions of dollars in 1960, equal to more than one quarter of the value of all Canadian exports. Exports of products chiefly of mineral composition in fully manufactured form, such as agricultural implements and electrical apparatus, amounted to an additional \$488 million. All provinces and territories of Canada contribute to the output of these industries and participate in the benefits derived from them.

Taken as a whole, the mineral industries are among the more dynamic sectors of Canadian industry. Their growth in output since 1949 is compared with that of all industries in the following table.

<u>Industry</u>	<u>Index of Production in 1961 (1949 = 100)</u>
Total Industrial Production	173
Total Manufacturing Production	153
Primary Iron and Steel	174
Non-Ferrous Metal Smelting and Refining	166
Mining	267
Asbestos	223
Copper	170
Gold	107
Nickel	184
Coal	50
Natural Gas	712
Petroleum	1,044

Source: Dominion Bureau of Statistics.

In 1960 the mineral industries employed about 2.7 per cent of the total Canadian labour force directly, and a great many more indirectly. These industries pay relatively high wages, as the following table indicates:

	<u>Annual Earnings Per Employee, 1960 (\$)</u>	<u>Average Hourly Earnings, August 1962 (\$)</u>	<u>Value Added Per Employee, 1960 (\$)</u>
All Manufacturing	4,036	1.86	8,134
Iron and Steel Mills	5,316	2.62	10,274
Smelting and Refining	5,174	2.43	17,088
Mining	4,687	2.17	10,791

Source: Compiled from statistics published by the Dominion Bureau of Statistics.

The average value added per employee in the mineral industries is also relatively high. This suggests that factors of production other than labour are used extensively. The mineral industries are heavy users of capital goods including machinery and equipment.

Equipment Used in the Mineral Industries

In order to discuss the varied types of equipment covered in the mining equipment schedule, it is necessary to describe the various production processes in the extracting and refining of minerals.

Representatives of the mineral industries pointed out repeatedly that no two ore bodies were alike, and that techniques of production differed even among installations treating similar materials. At the same time, there are classes of machinery which are very widely used by the mineral industries, and a description of some of these may assist the reader in following the remainder of this Report.

A high proportion of Canadian mineral output is extracted from hard rock formations; even where the ore itself is soft, shafts and tunnels must often be opened through hard rock to reach it. A pattern of holes is drilled, explosives inserted, and the rock blasted loose. Portable, percussion-type pneumatic rock drills are widely used for this purpose; they are equipped with a variety of mountings, depending upon whether the holes are to be drilled upwards, downwards or horizontally. A rock drill bit tipped with tungsten carbide inserts provides the working edge. Many other types of drilling equipment are used in special applications. The coal mining industry has its own particular needs. Diamond drilling equipment is widely used in exploratory work, particularly where core samples are required.

A wide variety of equipment is used to transport the ore. Some mines are equipped with narrow gauge underground railways complete with rolling stock, others with highly specialized trucks and tractors. Slushers may be used to scrape the loosened ore to a point where it is dropped onto a truck, car or conveyor belt on a lower level. Or, mine car loaders, often powered by compressed air, may be used to scoop up the ore and load it onto cars.

In almost every underground mine, the ore is raised to the surface in skips travelling in the mine shaft. Mine hoists are used to raise and lower the skips and the elevators, or "cages" in which the miners and materials are transported. The electric motors, the pulleys, the cable drums, the steel cable and the controls required for hoists are all part of the equipment of a mine.

Large amounts of compressed air are required to power the drills, the loaders and other equipment underground. Stationary air compressors are usually installed at the surface, and the air is

conveyed by steel piping and rubber hose wherever it is required. Ventilating equipment including large fans and ducts supply fresh air to the mines. The mineral industries constitute an extremely large market for pumps of all kinds; they are required to clear the mines of water, to move pulverized ore suspended in water from one point in a refining process to another, and to perform many other tasks.

In coal mines a great deal of the equipment used underground is of a highly specialized nature due in part to the fact that it must be safe in the presence of inflammable dusts and gases. This requirement has far-reaching effects on procurement; coal mining equipment must meet rigid standards established by provincial legislation and by recognized testing laboratories. Much of the equipment commonly used in other types of mines does not meet these safety requirements.

The equipment used in open pit mining is different in some respects from that used in mining underground. Large tractor-mounted drills are often used to drill blast holes. Power shovels and draglines of very large capacity are widely used. Fleets of off-highway trucks capable of carrying up to 40 tons, or tractor-haulers capable of moving as many as one hundred tons at a time, are used.

Most ores, once they have been extracted from the earth, must be pulverized before the mineral can be separated from the gangue. The jaw-type crusher is widely used in primary crushing, which may be done underground. At the mill, gyratory-type crushers are frequently used for further crushing. The ore may then be subjected to grinding in rod mills, ball mills and pebble mills equipped with classifiers, finally emerging as a fine powder.

The separation of minerals from gangue may involve mechanical, chemical, heating, electrolytic and other operations.

There are various mechanical techniques designed to produce an ore low in gangue content and a gangue low in mineral content. Advantage is taken of characteristics which distinguish the mineral from the rock. The one may be magnetic, or lighter or in larger particles. If the mineral is magnetic, then the ore may be passed through magnetic separators. If the mineral is of different specific gravity or is in particles of different size than the gangue, then the ore may be passed over concentrating tables, vibrating screens or other separating devices. Some minerals in aqueous suspension have a tendency to become attached to air bubbles rising through the mixture; as the mineral rises to the surface with the bubbles it is skimmed off. This is the principle of the flotation machine which is widely used in Canada. In the case of asbestos which is relatively light, the mineral may be blown free of the rock.

In some processes drum filters equipped with vacuum pumps are used to recover minerals in aqueous suspension; in others, huge settling tanks of steel plate may be used, and the mineral recovered from the bottom. Where chemical processes are involved, agitating tanks may be used to keep the ingredients in suspension while reactions occur.

Beyond this, it is difficult to offer any generalized description of the machinery and equipment used by the mineral industries. There are the blast furnaces, the open hearth furnaces, the overhead cranes and all the other paraphernalia involved in the production of pig iron and steel ingots. There are the rows of carbon-lined pots used in the electric reduction of aluminum. Much of the processing of uranium ores is chemical in nature and calls for a great deal of highly specialized equipment. A variety of blast furnaces, converting furnaces, heat exchangers and sintering, roasting and electrolytic equipment is used in the production of nickel, copper, lead, zinc and other minerals. While the foregoing is by no means a complete inventory of the types of equipment used by the mineral industries, additional details are contained in the Notes on Existing Items.

The Suppliers of Machinery and Equipment

A wide range of machinery and equipment for mining and mineral processing has been produced in Canada for a great many years. Understandably, the metal working industries have tended to specialize in the production of the kinds of goods required by the extractive industries based on Canada's natural resources of wood, water power and minerals. In catering to the specialized needs of these industries, manufacturers are not faced with the handicap of a small home market to the same extent as in catering to other industries. The mineral industries provide a large home market. Moreover, many of their requirements call for a degree of individual attention by the manufacturer which precludes mass production in any case.

There are very few firms devoted entirely to supplying the mineral industries with machinery and equipment. On the other hand, most Canadian manufacturers of machinery and equipment count the mineral industries among their more important customers. The mineral industries draw on nearly all Canadian producers of machinery and equipment for their requirements. These suppliers, in turn, purchase materials and parts from a wide range of industries. Indeed, the mineral industries are themselves large suppliers of materials used in the machinery and equipment which they ultimately buy.

A number of individual manufacturers and associations of manufacturers made representations indicative of their interests as suppliers to the mineral industries. Producers of industrial machinery, many of whom were represented by the Machinery & Equipment Manufacturers' Association of Canada, supply many of the heavier types of equipment such as drilling equipment, crushers and milling and refining equipment. Manufacturers of electrical apparatus not only supply motors and other component parts for mining and processing machinery, but they may also act as prime contractors for the supply of mine hoists, dredging plant and other heavy equipment. Manufacturers of industrial rubber products supply large quantities of rubber belts, belting, hose and other rubber products for use with machinery purchased by the mineral industries. Manufacturers

of steel castings, aside from supplying parts to manufacturers of mining machinery, sell a considerable tonnage of replacement parts directly to the mineral industries. For example, steel castings comprising the dippers of power shovels and the liners of crushers are subject to constant abrasion and require frequent replacement. Most of the very large off-highway trucks used in Canada are of types dutiable under tariff item 410a(iii), and manufacturers of such vehicles were represented at the public hearing. The manufacturers of tungsten carbide inserts indicated that they were heavily dependent on the mineral industries for a market. The manufacturers of industrial instruments pointed out their role in supplying components for machinery.

Some of Canada's largest manufacturers of heavy industrial machinery are Dominion Engineering Works Ltd., Canadian Vickers Ltd. and Canadian Allis-Chalmers Ltd. in or around Montreal, John Inglis Company Limited in Toronto, Canadian Ingersoll Rand Co. Ltd. in Sherbrooke, and John Bertram and Sons Company Limited in Dundas. These plants are equipped with very heavy metal working and handling machinery. They have heavy duty overhead cranes capable of lifting articles many tons in weight. They have machine shops equipped with boring machines, planers, radial drills, lathes and gear cutters capable of fashioning machinery and equipment of virtually any size from such basic materials as iron and steel castings, structural steel and steel plate. Among the products of these and other plants are rock drills, jaw-type crushers, gyratory-type crushers, rod or ball mills, power shovels, heat exchangers, kilns, compressors and pumps. While few, if any of these plants are dependent entirely or even mainly on orders from the mineral industries, they all concentrate to a noticeable extent on work for industries based on Canada's resources of minerals, wood and water power.

The production of machinery and equipment for the mineral industries is, however, by no means limited to that of the heavy machinery manufacturers. Many other plants, some of them equipped with somewhat lighter metal working tools offer specialized lines of mining or mineral processing machinery. A representative of the Machinery & Equipment Manufacturers' Association submitted a selected list of machinery and equipment commonly used by the mineral industries, together with the names of firms listed in the Canadian Trade Index as manufacturing those products. This list, which is contained in Appendix VII provides a further indication of the range of specialized goods for the mineral industries which is produced in Canada.

The types of goods which can be produced economically by a machinery manufacturer appear to depend upon a number of factors including the types of machine tools and the engineering experience which the firm has at its command. A firm cannot undertake a job which requires machine tools of a size larger than it has available; nor can a firm economically do light machining with heavy equipment.

There also seems to have developed a noticeable degree of specialization among the machinery manufacturers; a spokesman for a manufacturer specializing in mineral processing equipment stated:⁽¹⁾

"The problems which are usually presented to the machinery companies as problems to be met are to get so many tons and to get rid of so much waste or to react so much solution from a slurry, and the equipment companies usually go to the users' plant or perform tests in their own laboratories and come up with a machine that will meet the specifications. While these machines are, to some extent, custom made there are design principles, there are types of machines."

Much specialized mining machinery is neither mass produced nor entirely custom made. A few of the smaller items such as small pumps and rock drills are of sufficiently standard design and in sufficiently steady demand that they can be produced in small batches for stock. A good deal of equipment including crushers, large compressors, thickeners, settlers, classifiers and many other machines are commonly built to order from adaptations of standard plans; however, each manufacturer usually offers special features of his own design or patent. In other cases, machines must be built entirely on a custom basis, sometimes on site.

(1) Proceedings (Official Report), Tariff Board, Ottawa, (henceforth cited as Proceedings), September 25, 1961, pages 1830-1.

SECTION 2

THE DIMENSIONS OF THE MARKET

Purchases of machinery and equipment by the mineral industries other than petroleum and natural gas are estimated to have averaged some \$200 million annually since the end of 1955;⁽¹⁾ the amounts have, of course, varied considerably from one year to another with changes in the rates of expansion. Imports, largely under the mining equipment schedule, have probably accounted for about one fifth of total purchases. In years of exceptionally high demand, such as 1957, when the capacity of some Canadian manufacturers was fully utilized, imports have constituted a larger proportion of total supply than in other years. Some of the importations have consisted of goods deemed to be of a class or kind not made in Canada; accordingly, Canadian manufacturers would appear to have enjoyed a large proportion of the market for the kinds of goods they have been capable of producing economically under existing conditions.

Information on the value of importations and total purchases of machinery and equipment by a large number of firms in the mineral industries was obtained by means of several separate samples. A spokesman for the Canadian Metal Mining Association reported a survey which the Association had made prior to the public hearing. He stated:⁽²⁾

"We have made a determined effort to discover what volume of equipment and machinery used in the mining industry is imported and what percentage this constitutes of the total purchases of equipment and machinery by the mining companies...

"... a survey conducted among our member companies indicates that between 80% and 85% of all machinery and equipment used in Canadian mining operations is manufactured, in whole or in part, in Canada."

The spokesman for the Machinery & Equipment Manufacturers' Association of Canada indicated he would not dispute those findings.

The Board, with the co-operation of the mineral industries, subsequently obtained detailed statistics of purchases and imports of machinery and equipment from a large sample of mining and mineral processing companies. The results of this survey are shown in the table on the following page. The firms in the sample accounted for over one third of the total value of imports under the mining equipment schedule. On the basis of an unadjusted average, 11.5 per cent of the purchases of machinery and equipment by the firms in the sample were imported under the mining equipment schedule. Of the

(1) The derivation of this estimate is explained in Appendix VI.

(2) Proceedings, September 22, 1961, pages 1631-2.

Purchases of Machinery and Equipment by Selected Companies

<u>Description of Companies</u>	<u>Year</u>	<u>Total Purchases of Machinery and Equipment (\$000)</u>	<u>Imports under the Mining Machinery Tariff Schedule</u>		<u>Imports under Other Tariff Items</u>		<u>Total Imports (\$000)</u>	<u>As p.c. of Total Purchases</u>
			<u>(\$000)</u>	<u>As p.c. of Total Purchases</u>	<u>(\$000)</u>	<u>(\$000)</u>		
Five large base metal operations	Average of 1959 and 1960	26,995	1,407	5.2	..	..	..	..
Six gold mines	Average of 1959 and 1960	1,290	284	22.0	..	..	..	..
Two iron ore operations	Average of 1959 and 1960	39,548	3,006	7.6	..	..	..	..
All members of Quebec Asbestos Mining Ass.	1960	11,139	3,441	31.0	157	3,598	32.3	
Aluminum Co. of Canada Ltd., Arvida Works	First six months 1961	6,290	591 ^(a)	9.4	176 ^(a)	767	12.2	
Five iron and steel producers ^(b)	1960	29,653	4,531	15.3	335	4,866	16.4	
Total		114,915	13,260	11.5	..	..	..	..

^(a) The company only showed total imports; the division of imports between those entered under the mining machinery schedule and other imports has been made on the basis of import data for 1960 which the company supplied.

^(b) Includes only operations up to the pouring of steel.

smaller number of firms which reported their purchases of machinery and equipment under other tariff items, these purchases amounted to less than two per cent of the reporting firms' total purchases of machinery and equipment.

While precise information respecting the composition of the total annual purchases of equipment by the mineral industries is not available, a general description of the specialized requirements of these industries is contained in Section 1 of this Report. In addition, the results of a special survey by the Dominion Bureau of Statistics of purchases made in 1949 by the mineral industries and the petroleum and natural gas industry is contained in Table 10, Appendix IV in which such purchases are broken down into some 50 categories.

Statistics of imports entered under the mining equipment schedule provide considerably more information respecting that portion of equipment purchased by the mineral industries which is obtained abroad. The total value of these imports, in recent years, classified in two broad groups, is shown in the following table.

<u>Year</u>	<u>Imports Mainly for Mining(a)</u> (\$000)	<u>Imports Mainly for Mineral Processing(b)</u> (\$000)	<u>Total Imports</u> (\$000)
1951	16,070	3,457	19,527
1952	17,618	6,635	24,253
1953	15,252	7,474	22,726
1954	16,996	7,738	24,734
1955	18,706	7,610	26,316
1956	33,381	11,788	45,169
1957	37,003	18,794	55,797
1958	22,397	11,947	34,794
1959	26,139	7,848	33,987
1960	21,838	12,935	34,773
1961	21,762	12,502	34,265

(a) Includes imports under tariff items 410a; 410f; 410h; 410i; 410j; 410 l; 410m; 410n; 410o(ii) and 410r. Imports of tungsten carbide inserts, tips and blanks under tariff items ex 410 l; ex 427(1) and ex 711 are included only after 1955. Imports under tariff item 410r are not available after 1957; prior to that date they were very small in value.

(b) Includes imports under tariff items 410g; 410k; 410o(i); 410p; 410q; 410s; 410t; 410v; 410w; 410x and 410z. Imports under tariff item 410b are excluded because they have been made largely by processors of natural gas in recent years.

The high level of imports during 1956 and 1957 is undoubtedly a reflection of the exceptionally large number of mining and mineral processing developments, especially in uranium, which were under way. In most years approximately two thirds by value of importations under the mining equipment schedule have consisted of goods for mining and the remainder has been for mineral processing. Additional details of the 1960 and 1961 importations mainly for mining are shown in the table below.

Tariff Item	Description of Goods	Imports	
		1960 (\$000)	1961 (\$000)
410a	Power shovels, dragline and other excavating and loading machinery	3,900 ^(a)	..
410a	Off-highway trucks and parts	4,500 ^(a)	4,500 ^(a)
410f	Dredging equipment	206	409
410i	Mine safety equipment	2,465	2,472
410j	Miners' lamps	549	431
410 1	Machinery for crushing and grinding ore	2,387	2,588
410 1	Tungsten carbide inserts for rock drill bits	1,249	813
410 1	Rock drills and parts except bits	2,279	2,120
410 1	Rock drill bits	1,446	1,127
410m	Coal drills and coal cutting machines	621	789
Other importations mainly for mining		<u>2,236</u>	<u>6,513</u>
Total		21,838	21,762

(a) Estimated.

The goods imported mainly for mineral processing have been even more diverse in character. Between 50 and 75 per cent, by value, of imports for mineral processing are commonly entered under tariff items 410g, 410p, 410x and 410z; these tariff items prescribe the uses to which the goods provided for are to be put, but they do not limit with any precision the kinds of articles. Moreover, the mix of goods entered under these items is known to change considerably from year to year. Imports under tariff item 410g, which were valued at \$2,183,638 in 1960 and at \$689,209 in 1961, are believed usually to have consisted largely of parts and ancillary equipment for blast furnaces, but imports of equipment for sintering or nodulizing iron ore have been relatively more important of late. The composition of imports under tariff item 410p, which were valued at \$6,114,168 in 1960 and \$4,894,868 in 1961, has depended in part on whether the steel industry, the uranium industry, the aluminum industry, the nickel-copper industry or some other mineral processing industry has been undergoing the most rapid expansion. Details of the imports under tariff item 410p are contained in Appendix III; industrial furnaces, cranes, converting apparatus and charging apparatus have accounted for a substantial part of the value of imports under the item in recent years.

Other tariff items providing for mineral processing equipment, including items 410q, 410s, 410t, 410v and 410w are more specific in wording, but they do not necessarily provide for all importations of the goods specified. Tariff item 410t, for example, specifies blowers and furnaces, but these may also be imported under tariff item 410p or under other items, depending upon the uses to which the importations are to be put.

SECTION 3

REPRESENTATIONS AND PROPOSALS

The following pages contain a general review of the more comprehensive representations and proposals which were made. Most of the representations and proposals made with respect to particular tariff items are contained in the Notes on Existing Items.

The Equipment Manufacturers

Machinery & Equipment Manufacturers' Association of Canada

The Association was strongly critical of the end-use principle as it is applied in the mining equipment schedule. For purposes of tariff policy formulation, their spokesman distinguished between goods which could be economically made in Canada and those which could not; and, with respect to end-use items, he distinguished between goods peculiar to and used only by the industry named and those of more general application.

With respect to articles which could not be economically made in Canada, the spokesman for the Association said:(1)

"The Canadian economy is not 'mature' in the sense that the economies of the United States, the United Kingdom, Germany, etc., may be said to be 'mature'. It is true now and will be true for some time that because of the limited Canadian market, it is not economical to manufacture some lines of machinery, apparatus, appliances, and equipment in Canada. If the machinery, etc., is not presently being made in Canada, the only question to decide is whether there should be some customs duties for revenue purposes..."

With respect to articles used only by the industry designated in a particular tariff item, he said:(2)

"In respect of some of the 'end-use' items, the articles included are peculiar to and would only be used by the industry named. Apart from any changes in wording that might be suggested for purposes of clarification, simplification or modernization, the point at issue is the appropriate rate of duty. Consideration should be given as to whether the goods are or not of a class or kind made in Canada, and if made, the relative economic vulnerability of the primary industry involved and of the domestic

(1) Proceedings, September 18, 1961, page 953.

(2) Ibid., pages 953-4.

manufacturer of the goods. There must be weighed on the one hand, the effect on the competitive position of the primary industry of having to pay customs duties on importations, and on the other hand, the protection to which the domestic manufacturer is reasonably entitled."

With respect to articles not peculiar to the industry designated in a particular tariff item, he said:(1)

"Some of the so-called 'end-use' items, however, include machinery, apparatus, appliances and equipment that is not peculiar to the primary industry named, but is used by many different industries, and is presently being made in Canada in substantial quantities. Such 'end-use' items are discriminatory, inasmuch as some users may import such machinery, etc., at lower rates than other users."

Commenting on the effects of the mining equipment schedule, he contended that heavy importations by the mineral industries had contributed to the decline in employment which had occurred in the industrial machinery industry since 1957. And, after stating that only about 38 per cent of the domestic market for industrial machinery of all types was supplied by Canadian manufacturers, he said:(2)

"...this percentage is not likely to be increased as long as preferred users are able to import machinery either free or at low rates of duty..."

Calling for a review of the end-use items, he stated:(3)

"If it is not practical at this time to eliminate all of the 'end use' items in the Customs Tariff, at least they should be reviewed and examined. The onus should be on the industries benefitting from these items to establish the extent to which their competitive position would be adversely affected...and keeping in mind that the domestic manufacturer should be entitled to some protection in respect of such machinery, apparatus, appliances and equipment as is available in Canada."

The proposals of the Machinery & Equipment Manufacturers' Association of Canada are tabulated in Appendix IX. They would affect tariff items under which imports valued at about \$27 million were entered in 1961; the Association made no proposals respecting other tariff items in the mining machinery schedule under which imports valued at about \$7 million were entered.

The proposals of the Association would involve a reduction in the scope of the mining equipment schedule; in a number of instances terms such as "machinery and apparatus" and "machinery and appliances" would be deleted. The concept of end-use would be

(1) Proceedings, September 18, 1961, page 954.

(2) Ibid., page 958.

(3) Ibid., page 951.

largely eliminated while that of a generic grouping of mining machinery would be extended. The spokesman for the Association stated:⁽¹⁾

"Our approach is that whenever possible the tariff items should include only specifically named articles and that the rates of duty should be the same regardless of the end user. In respect of the tariff items at issue in many cases the articles are peculiar to the mining and metallurgical industries and consequently there is no problem of discrimination."

Most of the goods which, under the proposals, would no longer be entered under the mining equipment schedule would probably be dutiable under one of the following three items:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
<u>Tariff Item 427(1)</u>			
All machinery composed wholly or in part of iron or steel, n.o.p.; parts of the foregoing	10 p.c.	22½ p.c.	35 p.c.
<u>Tariff Item 427a</u>			
All machinery composed wholly or in part of iron or steel, n.o.p., of a class or kind not made in Canada; complete parts of the foregoing	Free	7½ p.c.	35 p.c.
<u>Tariff Item 446a</u>			
Manufactures, articles or wares, of iron or steel or of which iron or steel or both are the component materials of chief value, n.o.p.	10 p.c.	22½ p.c.	35 p.c.

Of the articles named in the new tariff items proposed by the Association, those of a class or kind not made in Canada would, in many cases, be duty-free. Of the other articles named in the proposals, many would bear preferential rates of 5 p.c. and most-favoured-nation rates of 15 p.c. Coal cutting machines and diamond drills of a class or kind made in Canada would be duty-free under the Preferential Tariff and would be dutiable at 10 p.c. under the Most-Favoured-Nation Tariff. Furnaces and blowers of a class or kind made in Canada would bear a preferential rate of 12½ p.c. and a most-favoured-nation rate of 17½ p.c.

The spokesman for the Association said that in proposing these rates they had considered (a) the relative vulnerability of the coal mining industry, the other mining industries and the metallurgical industry, (b) the desirability of maintaining the British preferential rates, and (c) that articles not made in Canada should be either duty-free or dutiable at low rates.

⁽¹⁾ Proceedings, September 18, 1961, page 961.

In many of the proposed items the duties on parts would depend upon whether or not the parts themselves were deemed of a class or kind made in Canada. In the course of the public hearing, however, the spokesman for the Association modified his stand on this matter, and indicated his belief that a part should be dutiable at the same rate as the machine for which it was intended. He stated:(1)

"Again, perhaps being an amateur in drafting tariff items, it was our intention...that the parts follow the whole."

The very general wording of some of the existing items in the mining equipment schedule makes it impossible to discern with precision the effects which the proposals of the Machinery & Equipment Manufacturers' Association of Canada would have on rates if they were implemented. Nevertheless, on balance, it would appear that the Association's proposals would result in somewhat higher rates than those now in effect.

Canadian Electrical Manufacturers' Association

The Association objected to end-use items as being discriminatory, as adversely affecting the volume of sales of Canadian manufacturers, and as exerting downward pressure on prices. The spokesman for the Association stated:(2)

"End-use tariff items are by their nature discriminatory. They are discriminatory for the reason that they confer an exemption from taxation on selected companies or industries that is not conferred equally on all Canadian importers of similar or identical equipment. In our view, therefore, an onus rests upon the users of end-use items to justify the continued existence of such concessions. We believe that discriminatory fiscal provisions may only be justified when those who enjoy their benefits can demonstrate that a continuation is necessary in the national interests.

...

"...the impact of an end-use item cannot be measured entirely by the volume of imports under that item. Indeed, imports under a given tariff item might be nil and yet the mere existence of the item may have a major impact on the Canadian manufacturer. This results from downward pressure on prices, the preferred end-user utilizing his preferred concession in the Tariff not necessarily to import under it, but as a bargaining weapon to drive down the price of Canadian equipment..."

The Association pointed in its brief to the lack of growth in the electrical apparatus industry in recent years, which it ascribed in part to imports under the mining equipment schedule.

(1) Proceedings, June 21, 1962, pages 2151-2.

(2) Ibid., September 18, 1961, pages 1091-2 and 1100.

Electrical goods may be entered under the mining equipment schedule as component parts of machinery or as replacement parts; and some imports, such as dredging equipment, are largely electrical in nature. While it is not possible to segregate imports of electrical goods from other imports under the mining machinery schedule there is no doubt that the electrical components of the imported machinery and equipment are significant in value.

A number of representatives of mineral industries, on the other hand, asserted that in buying electrical apparatus, they dealt largely with Canadian manufacturers. The Aluminum Company of Canada Limited reported that in 1960 only 4.5 per cent of the value of its purchases of electrical apparatus for its reduction plants and power division had consisted of goods known to be of foreign origin. The Potash Company of America reported that less than one per cent of its electrical equipment had been imported. The manufacturers of electrical apparatus are themselves large importers of electrical apparatus for resale, and the customer does not always know the origin of the goods he buys. In this connection, a spokesman for the Canadian Electrical Manufacturers Association stated:(1)

"In some cases it is not economical to manufacture in Canada... In some cases economics dictate importation."

Another spokesman for the electrical manufacturers stated that the industry was "capable of producing competitively, under reasonable tariff protection, virtually every piece of electrical apparatus required in this country". He went on, however, to say:(2)

"...the words used are virtually every piece of electrical apparatus required in this country, and this was put in after considerable investigation. There may be things people can bring up... We tried to be realistic in indicating there may be some areas where they are not made in Canada, and we are unable to see the advances of technology in the future."

In this connection, a spokesman for the Quebec Asbestos Mining Association contended that electric motors specially designed for use in large power shovels, which are entered under tariff item 410a(i), were not obtainable in Canada. There was some discussion as to whether or not such motors could economically be made in Canada; they had never been made in Canada at the time of the public hearing.

The Canadian Electrical Manufacturers Association proposed that the end-use items before the Board in this Reference be deleted. As an alternative, it proposed that each be amended by adding thereto the following clause:(3)

"The foregoing not to include electrical apparatus, controls, motors, generators, transformers, electric wires and cables, turbines and turbine generator sets."

(1) Proceedings, September 19, 1961, pages 1191-2.

(2) Ibid., pages 1202-3.

(3) Ibid., September 18, 1961, page 1090.

As another alternative the Association proposed that each of the items before the Board should be governed by a "class or kind not made in Canada" clause.

The Rubber Association of Canada

A spokesman for the Association said that substantial quantities of rubber belts, belting and hose were imported as parts of equipment entered under the mining equipment schedule. He pointed out that while a complete range of these products was made in Canada imports of industrial rubber goods had been increasing more rapidly than Canadian shipments, and he stated:(1)

"...it is the considered opinion of the rubber companies engaged in the business that import competition is considerably more severe in the segment of the market for rubber belts, belting and hose which is affected by the end-use and drawback items in question than in fields where imports are subject to the regular provisions of the tariff."

Representatives of mining interests at the public hearing expressed doubt that rubber goods entered as replacement parts were imported in much volume under the mining equipment schedule. They pointed out that rubber belting for example, would be entered under the mining equipment schedule only if it were cut to size.

The Rubber Association proposed that, if certain items in the mining equipment schedule were to be retained in the Tariff, they be amended to exclude belts, belting and hose, wholly or in part of rubber; however, with respect to tariff item 410k the Association asked that nothing be done which would have the effect of bringing rubber belts, belting and hose within its ambit.

The spokesman for the Association made it clear that the intent of the proposals was to exclude from the mining machinery schedule only rubber goods entered as replacement parts; it was not intended that rubber goods forming part of a piece of original equipment should be dutiable separately at different rates.

The Industrial Instrument Manufacturers' Association

The Association complained about the importation of instruments entered under the mining equipment schedule. Their spokesman stated:(2)

"...this Association firmly believes that the retention of the present provisions of these tariff items constitutes a deterrent to the further expansion of the industrial instrument industry in Canada in that these provisions offer

(1) Proceedings, September 19, 1961, page 1208.

(2) Ibid.; page 1226.

encouragement, through low rates of duty and duty free privilege, to the importation of foreign made goods which are the same or approximately the same as those already being made in Canada or capable of being made here given a reasonable degree of tariff protection."

In comparing costs in Canada with those in the United States, the spokesman for the Association stated:(1)

"...undoubtedly our costs are higher in Canada than in the United States on most items. Some of them are lower but most higher."

Another spokesman for the industry stated:(2)

"I would relate this back to the cost of parts. Believe me we do not get any break from companies in the United States, so we have to relate our price to those prices, plus handling costs, and we do have problems in keeping our prices down."

Spokesmen for mining interests expressed the view that the Canadian instrument industry was not yet fully developed nor in a position to meet all their needs.

The Industrial Instrument Manufacturers' Association proposed changes in the wording of a number of tariff items which were designed to exclude instruments from the mining equipment schedule. The spokesman for the Association made it clear that he had in mind not only instruments imported as replacement parts but also instruments attached to original equipment, or imported to become part of an original installation.

Under the proposals of the Association, many of the instruments now entered under the mining equipment schedule would, if of a class or kind made in Canada, be admissible at a most-favoured-nation rate of $22\frac{1}{2}$ p.c. under tariff item 445k or 446a. If of a class or kind not made in Canada, most of them would be entered under tariff item 445n which provides for duty-free entry under the British Preferential Tariff and $7\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff.

The Steel Castings Institute of Canada

The Institute criticized the end-use items in the mining equipment schedule and proposed that they be deleted. A spokesman for the Institute stated:(3)

"The Institute does not question the level of the rates of duty applicable to imports under the general tariff, but rather whether the industries importing under the tariff items being reviewed should continue to receive preference on their imports vis-a-vis other Canadian industries which also import similar and other goods..."

(1) Proceedings, September 19, 1961, page 1235.

(2) Ibid., pages 1235-6.

(3) Ibid., September 20, 1961, page 1285.

He said the industry had the facilities and technology to supply all the steel castings required by the mineral industries. He estimated that approximately 30 per cent of the shipments of its members were to the mineral industries; about half of the shipments were made directly to the mineral industries and the other half were made to manufacturers of mining machinery. The Canadian steel casting industry obtained virtually all the business of supplying the mines with manganese steel replacement parts not requiring further machining. Other steel castings, consisting of machined castings which are integral working parts of the machines, are frequently ordered from the manufacturers of the machine whether in Canada or abroad. Of this latter class, he estimated the Canadian steel castings industry obtained about 75 per cent of the business, excluding castings brought in as parts of new equipment. Commenting on this, a spokesman for the industry said:(1)

"I think it shows very readily that we are highly competitive... The large proportion of castings that we are losing are the castings that are coming in in the machinery and equipment..."

A spokesman for the Institute indicated it was hoped that the imposition of duties on replacement parts would bring the member companies a larger share of the business of supplying steel castings as replacement parts.

John Inglis Company Limited

The company, while supporting the position taken by the Machinery & Equipment Manufacturers' Association of Canada, also presented a separate brief strongly opposing the end-use items in the mining equipment schedule. An official of the company stated:(2)

"However justifiable these 'end use' items may have been when introduced the Board is concerned with their present impact on the Canadian economy. We suggest that they now accrue to the benefit of many well established firms conducting profitable operations in Canada. At the same time, these items are detrimental to the interests of Canadian machinery and equipment makers.

'End use' items by their very nature discriminate between different classes of users of the same goods. The privileges accorded by 'end use' items apply unevenly across the Canadian structure, according benefits to specific users which are not available to other segments of industry."

He expressed the view that where foreign ownership was involved in mining projects, the adverse effects of the mining equipment schedule on Canadian suppliers was particularly marked:(3)

(1) Proceedings, September 20, 1961, page 1309.

(2) Ibid., pages 1361-2.

(3) Ibid., page 1365.

"There is a very natural tendency on the part of foreign owners to have a preference for their known suppliers and also the same tendency on the part of consultants retained by them, without exploring the availability of Canadian made equipment.

If the Canadian manufacturer solicits the privilege of supplying equipment for one of their projects he may be allowed to bid but frequently is warned that the equipment is admissible under an 'end use' item. Under these conditions it simply means that the reported value of imports through 'end use' items is far from being a true measure of the impact of these items on Canadian secondary industry."

The company proposed that the end-use items before the Board be deleted, or failing that, that they be restricted to goods of a class or kind not made in Canada.

Union Carbide Canada Limited

The company is a producer of industrial carbon and graphite products including carbon and graphite electrodes for electric arc furnaces, graphite anodes for electrolytic chlorine-caustic soda cells, carbon blocks for aluminum pot linings and for lining electric arc furnaces, and electrical contact brushes for motors. It estimated that 16 per cent of these products were imported, mainly under tariff items 314; 315a and 445g which are not before the Board in this Reference. An official of the company expressed concern, nonetheless, that the mining equipment schedule might be revised in a way which would affect his company adversely. He made the following proposals:

1. That the end-use tariff items be deleted.
2. Alternatively, that the tariff items be amended by adding thereto a clause reading:- 'The foregoing not to include industrial carbon or graphite products'.
3. Alternatively, that all the tariff items before the Board should be governed by 'a class or kind not made in Canada' clause.

And he stated: ⁽¹⁾

"... we would ask that when dealing with parts that parts be dealt with on the basis of class or kind made in Canada and class or kind not made in Canada."

American-Standard Products (Canada) Limited

The company submitted a brief relating to dust collectors, including the following types:

(1) Proceedings, September 20, 1961, page 1348.

Cloth filter dust collectors

Dust collectors (air cleaning) designed to operate on the wet wash or water spray principle

Mechanical air separators, designed for the separation of fines from powdered material by means of an air stream

Electronic air cleaners designed for the cleaning of air by utilizing the two stage electrostatic precipitation principle

It was stated in the brief that all types of dust collection equipment were made in Canada, although this was disputed at the public hearing. The company named tariff items 410b, 410g, 410p, 410t, 410w and 410z as being among the items in the mining equipment schedule under which dust collectors are "permitted discriminatory entry", (1) and stated: (2)

"We take the view that dust collection equipment, all types of which are produced in Canada, should not be included in any item which will reduce the rate of duty from the present 22 $\frac{1}{2}$ % of item 427 of the tariff."

The Primary Iron and Steel Industry

The producers of iron and steel have an important interest in the mining equipment schedule both as suppliers of materials to secondary manufacturers and as importers of machinery and equipment for their own use. As suppliers of materials, they stand to benefit from measures designed to foster the growth of secondary manufacturing in Canada. As users of machinery and equipment of the types provided for in the mining equipment schedule, particularly tariff items 410b, 410g, 410p and 410s, they stand to benefit from retention of the low rates of duty carried by these items.

A spokesman for five steel producers emphasized the importance to the steel industry of maintaining a healthy secondary manufacturing industry in Canada, and he indicated that the steel producers followed a policy of buying their machinery and equipment in Canada whenever possible. At the same time, pointing out the importance to the steel industry of being able to obtain its machinery and equipment at the lowest possible prices, he stated: (3)

"We must take into very serious account our ability to quote prices that will challenge the competition from the rest of the world in the Canadian market for steel.

(1) Proceedings, September 21, 1961, page 1479.

(2) Ibid., page 1478.

(3) Ibid., September 19, 1961, page 1244.

"If we are to continue to grow with the economy and to serve the secondary manufacturers, we cannot be burdened with unduly high purchase costs of capital equipment. Not only the future expansion of our industry is involved. Wear and tear requires frequent purchases for replacement. Modernization is a similarly important factor. In competing for the Canadian market against world prices, it is paramount that the costs of capital goods to the steel industry be as moderate as can be."

While making no specific proposals respecting rates of duty, the spokesman for the steel producers stated:(1)

"The Tariff Board is therefore respectfully reminded that our policy of buying capital equipment from Canadian sources has been developed under the existing rates of duty. If these rates were unduly enhanced, the risk of higher prices for Canadian equipment, and its reflection in steel costs, could outweigh the benefits gained by the machinery builders..."

"It is therefore our hope that the Board will be able to recommend rates of duty that will be adequate for the apparatus manufacturers and moderate for their customers. No doubt in this regard, the Board will take into account the costs entailed in Canadian manufacture, in relation to cost elements in other countries."

The Consolidated Mining and Smelting Company Limited, which is now a producer of pig iron, wrote as follows in its brief:(2)

"Last year the Company spent approximately \$6,000,000 in the development of pig iron production at Kimberley. This plant required specialized equipment, not available in Canada, worth approximately \$1,295,000, which was imported under the 410 tariff items. The rates of duty and exemptions specified in the various 410 tariff items assisted materially in keeping down the cost of this plant to a level where it was economically possible to build it. The lower levels of duties under the 410 tariff items were beneficial to the Canadian economy, because the plant is and may continue for several years to be a marginal operation. Most of the output of the plant must be exported in competition with iron from all parts of the world until such time as the Western Canada market develops to the extent that it can use all the iron produced."

The Mineral Industries

The position taken by the mineral industries was one of support for the mining equipment schedule. Most of the proposals they made were designed to extend the scope of some of the items and to reduce some of the rates of duty. At the same time, there

(1) Proceedings, September 19, 1961, pages 1244-5.

(2) Ibid., September 22, 1961, pages 1742-3.

were important areas of agreement in principle between the mineral industries and the equipment manufacturers. Neither group opposed duty-free entry under the mining equipment schedule of goods which could not economically be produced in Canada. Nor did either group oppose some level of duties on goods which could economically be produced in Canada, although there were differences as to how high the duties should be. In this latter connection a spokesman for the Canadian Metal Mining Association stated:(1)

"...there appears to be little need or justification for any substantial changes in the tariff items under review. In some instances we regard the degree of protection already afforded as somewhat excessive... In other instances Canadian manufacturers may be able to prove that they are unduly and unfairly handicapped by lack of adequate protection."

The Association expressed the view that the mining equipment schedule was based on two principles which it approved. Their spokesman stated:(2)

"The series is based on two major principles. The first is that primary industries, of which mining is one of the most important and progressive, are basic to the national economy and of prime importance to our export trade; and that therefore such industries should be enabled to purchase, without undue tax penalty, equipment and machinery needed for use in the production process. The principle...is similar to that which exempts from sales tax capital equipment and machinery used in the production of goods.

Secondly, where such equipment and machinery is not available from any Canadian source, imports should carry a low rate of duty or be subject to free entry."

He contended that these were principles which had been sanctioned by law and long-established practice, and that the question at issue was:(3)

"...whether the particular tariff items now under review are serviceable and equitable in their operation, taking into account the interests of the purchasers and users, the importers and the manufacturers of the equipment and machinery affected."

The spokesman presented a review of business conditions in mining, and pointed out difficulties in the marketing of uranium, gold and other minerals. He further stated:(4)

"...we are in an era of intense international competition for trade and markets. This is conspicuously true of mining products which must compete with similar products being developed

(1) Proceedings, September 22, 1961, page 1633.

(2) Ibid., pages 1621-2.

(3) Ibid., page 1623.

(4) Ibid., page 1630.

in increasing volume from the so-called 'underdeveloped' countries of South America and Africa and, in certain instances, from Soviet Russia and her satellite states."

He said that tariff increases would adversely affect mining directly through increased costs and indirectly through the international repercussions of such a move.(1)

"The avoidance of additional costs arising from tariff increases or other sources, as well as long-term stability of tariff policy, is of the greatest importance for the future welfare and growth prospects of the mining industry in Canada..."

"...Any divergence, either real or apparent, from our traditional and announced policy of liberal multilateral trade, particularly at this critical time when new trade 'blocs' are emerging, could rebound with serious repercussions on our export trade. The international implications of tariff increases deserve to be considered and weighed with the greatest care."

He referred to the survey his Association had made which indicated that between 80 and 85 per cent of the machinery and equipment used in the mining industry was made wholly or partly in Canada:(2)

"Our survey confirms that the common practice in Canadian mining companies is to 'buy Canadian' wherever and whenever Canadian manufacturers can supply the required machinery and equipment."

While agreeing that growth in Canadian secondary industry was desirable, he opposed measures to this end which would be prejudicial to mining. He stated:(3)

"We appreciate the service which the industry receives from Canadian manufacturers and agree most readily that the growth of secondary manufacturing in this country is an objective to be striven for. We believe, however, that each case must be judged on its own merits and that the onus of proof must rest with those who advance claims for upward adjustments in tariff rates.

"We note, with complete agreement, the following statement from the recently published Report of the Special Committee of the Senate on Manpower and Employment:

'In the domestic economy our main concern must be focussed upon the secondary manufacturing and capital investment industries. It is particularly vital to achieve renewed expansion in both these fields. The

(1) Proceedings, September 22, 1961, pages 1629-30 and 1631.

(2) Ibid., pages 1632-3.

(3) Ibid., pages 1633-4.

malaise in secondary manufacturing points strongly to the need for new and positive approaches. The solution is not to be found in restrictive and cost-raising measures of national self-sufficiency. What is needed are measures which would stimulate expansion along efficient and dynamic lines which hold promise for future growth and adaptability in a highly competitive and rapidly changing world'."

A representative of the Quebec Asbestos Mining Association asserted that the main reason underlying the mining machinery schedule was:⁽¹⁾

"...that, in the case of most minerals, or the products made immediately from them, markets had to be obtained beyond Canada for the simple reason that the Canadian market took so little of Canadian output. The Canadian products had to compete for the markets abroad without benefit of tariff protection and, in some cases, against tariff protection enjoyed by domestic producers in the markets abroad. Hence, the incentive was to lower production costs, one way towards which was minimal duties on, or free entry of, production equipment. To what extent has this situation changed today? The very small proportion of our product absorbed by the domestic market is 5%, since, as mentioned above, 95% of our product is exported."

The spokesman for this Association pointed out that any increase in duties on equipment would raise the cost of producing asbestos at a time when it was essential for the industry to remain competitive in world markets.

While they strongly supported the principal features of the mining equipment schedule, both the Canadian Metal Mining Association and the Quebec Asbestos Mining Association drew attention to certain imbalances within the schedule. A number of the tariff items in it provide for entry of goods only when for use in certain sectors of the mineral industries. Both Associations proposed that some of these tariff items be broadened to permit their use by other sectors of the mineral industries. For example they proposed that the phrase "or in the beneficiation of non-metalliferous ores" be added to a number of tariff items.

The Quebec Asbestos Mining Association also made the following proposal of a general nature:⁽²⁾

"That a proviso, or equivalent provision, be added to the so-called 'mining schedule' that, where goods enumerated therein would, if not enumerated therein, be entitled to entry at a lower rate, the goods shall be entitled to entry at such lower rate."

(1) Proceedings, September 21, 1961, page 1498.

(2) Letter to the Board dated July 16, 1961.

The spokesman for Aluminum Company of Canada Limited described in considerable detail the problems the company was facing in selling aluminum abroad. He referred, among other things, to developments in Europe which were making it more difficult for Canadian aluminum to compete in that important market. Other world developments had tended to reduce the competitive advantage of cheap hydro electric power enjoyed in Canada. He stated:(1)

"...any increase in costs that would force an increase in the selling price will make Canadian aluminum that much less competitive and may contribute to the loss of substantial export markets and resultant loss of employment opportunities within the aluminum industry in Canada. This would also result in an increase in the price of aluminum to some 3,000 Canadian firms which use it in their products, many of whom are also actively seeking export markets for their products, and competing with imports for the Canadian market."

The Consolidated Mining and Smelting Company of Canada Limited described in a written submission some of its recent expansion projects and those planned for the future. It pointed out that the mining machinery schedule had assisted in keeping their capital costs down to a level which had made expansion feasible. It said it was essential that these rates not be increased so that the assistance they provided would be available for future projects, including the very large one planned at Pine Point in the Northwest Territories. At the same time, the company did not object to some protection for Canadian manufacturers; the company stated in its brief:(2)

"As previously mentioned, the Company makes its purchases of equipment, whenever possible, from Canadian manufacturers and it has no objection to the existing tariff items where they provide protection for the Canadian manufacturer who produces equipment specified in the tariff items."

The coal industry, in its brief, pointed to its serious economic difficulties which are well known and which, said a spokesman for the industry, "make it impossible for the industry to accept any added burden". The industry underlined the importance of its capital expenditures program in its struggle to meet competition. Their spokesman stated:(3)

"The coal industry has met the challenge of competition from other fuels by exceptional measures of modernization, mechanization and technological improvement in both underground and strip-mining operations in the past decade. This technological improvement has involved the installation of unique and costly machinery. The ability to cut costs by the utilization of up-to-date machinery and methods appears

(1) Proceedings, September 22, 1961, pages 1697-8.

(2) Ibid., page 1744.

(3) Ibid., June 20, 1962, page 1931.

to be the condition for survival of the coal industry in Canada. Any unnecessary increase in the cost of machinery or parts would seriously impair the mechanized, forward looking coal industry which Canada has developed under adverse circumstances."

While contending that by far the greater portion of its requirements was purchased in Canada, he emphasized the highly specialized nature of some coal mining equipment which, he said, could probably never be produced economically in Canada because of the relatively small market. He stated:(1)

"The producers of coal mining equipment are countries with a large domestic market for such equipment. The production of coal in the United Kingdom, Germany and the United States ranges from 200,000,000 to 500,000,000 tons annually compared with Canadian production of hardly more than 10,000,000 tons. It is obvious that the establishment of manufacturing facilities for coal mining equipment and research and development of new kinds of equipment is economic in large coal producing countries, but cannot be for the small and widely scattered coal industry of Canada."

The details of many of the proposals made by the coal industry are contained in the Notes on Existing Items. A recurring point of discussion was the tariff treatment of parts for equipment specified in the proposals. Towards the end of the hearing, the spokesman for the coal industry made the following statement respecting the intent of the proposals:(2)

"...the intent is clear that the parts would follow the machines in all these items."

British Interests

British Mining Equipment Export Association and Associated Electrical Industries (Canada) Limited both made representations opposing increases in the duties carried by the tariff items in the mining equipment schedule.

(1) Proceedings, June 20, 1962, pages 1934-5.

(2) Ibid., June 21, 1962, page 2170.

SECTION 4

NOTES ON EXISTING ITEMS

This section contains information respecting markets, sources of supply, representations and proposals in addition to the usual notes relating to the recommendations of the Board. The reason for such an arrangement is that the tariff items in the mining equipment schedule, although linked together by virtue of their end-use provisions, lack other characteristics in common which would permit their treatment as a group. There is, for example, no mining equipment industry as such involved, but rather a broad range of goods, some of which are designed for use in mining and some of which have uses throughout industry. The Reference does not encompass all or even most of the products of any manufacturing industry, nor does it encompass all the uses of many of the goods involved.

Existing Items 399a and 848 in so far as
They Relate to Drills, Drill Bits and Parts

399a
(in part) ...; seismograph drilling bits, in sizes three and one-half inches to four and three-quarter inches inclusive; all of the foregoing for use in connection with natural gas or oil wells

5 p.c. 10 p.c. 20 p.c.

848 All machinery and apparatus and parts thereof (including motive power) and drilling mud, for use in exploratory or discovery work in connection with, and development, depletion and production of petroleum or natural gas wells

Free Free Free

The portion of tariff item 399a which is within the scope of the Reference and all of tariff item 848 are discussed in Volume 1, and recommendations covering most of the goods involved, including oil and gas well drilling rigs, are made therein. Recommendations respecting other drills, and drill bits are contained in this second volume.

The Board is recommending the deletion of tariff item 848 and that part of tariff item 399a which refers to seismograph drilling bits. Bits and drills, other than the equipment specified in recommended item I in Volume 1, are provided for in recommended item VII(a). They would be free of duty if of a class or kind not made in Canada and dutiable at a British preferential rate of 5 p.c., a most-favoured-nation rate of 15 p.c., and a general rate of 25 p.c. if of a class or kind made in Canada. See note on recommended item VII(a).

Existing Item 399c

399c Materials for use in the manufacture of the goods specified in tariff items 399a and 399b

Free Free Free

The removal of seismograph drilling bits from tariff item 399a would reduce the scope of that item. Since the most-favoured-nation duty on these bits would be increased from 10 p.c. to 15 p.c. the Board considers it unnecessary to continue the special provision for materials used in their manufacture. Accordingly, no change in tariff item 399c is recommended; it would continue to provide for the free entry of materials for use in the manufacture of the goods specified in tariff item 399b and those goods enumerated in tariff item 399a which are not within the scope of the Reference.

Existing Item 410a

410a	(i) Loading machines; shaker trough, belt trough, chain or elevating conveyors; air engines; flame-proof enclosed driving motors; of a class or kind not made in Canada, and parts of all motive power or machinery mentioned in this item, for use exclusively in mining operations	Free	Free	35 p.c.
	(ii) Trucks or tractors, self-propelled, mounted on wheels or on endless tracks, including motive power, when of a class or kind not made in Canada, for use exclusively underground in mining operations; parts of the foregoing	Free	Free	27½ p.c.
	(iii) Diesel-powered self-propelled trucks, mounted on rubber-tired wheels or on rubber-tired wheels and half-tracks, side or rear dump, having a rated capacity by struck volume, of not less than 9½ cubic yards and by payload weight, of not less than 15 tons, and complete parts thereof, for off-highway use in carrying minerals, ores, rock, stone, sand, gravel and other excavated materials at mines, quarries, gravel and sand pits or at construction sites	Free	7½ p.c.	27½ p.c.
	(iv) Mine car loaders, self-propelled, single-bucket type, the bucket of which loads at the front and moves over the loader to discharge at the rear, n.o.p., and parts thereof, for use exclusively in mining operations	Free	10 p.c.	35 p.c.

The value of imports under the four parts of tariff item 410a are recorded together in the official statistics, but a partial separation of imports under the four parts from countries entitled to most-favoured-nation treatment has been made, with the following results:

Imports under tariff items 410a(i), 410a(ii), 410a(iii) and 410a(iv)

Year	Imports from Countries, Entitled to Most-Favoured-Nation Rates(a)				
	Total Imports (\$000)	Imports from U.K. (\$000)	Under Tariff	Under Tariff Item 410a(iii) (\$000)	Under Tariff Item 410a(iv) (\$000)
			Items 410a(i) and 410a(ii) (\$000)		
1952	8,814	162	2,901	5,378	373
1953	6,162	286	2,260	3,320	296
1954	5,661	142	2,538	2,730	250
1955	8,506	835	3,659	3,650	462
1956	17,639	2,922	5,075	9,086	556
1957	18,315	1,097	10,022	7,064	132
1958	11,758	998	8,107	2,592	61
1959	14,768	771	8,106	5,644	247
1960	10,099	667	5,148	4,136	148
1961	10,465	1,957	4,709	3,760	40

(a) Estimated by relating duties collected to value of imports.
Imports under tariff items 410a(i) and 410a(ii) are free of duty,
and the rate under tariff item 410a(iii) is different from that
under tariff item 410a(iv).

Of the imports from the United Kingdom in the years 1955 to 1960, well over half in value would seem to have consisted of off-highway trucks and parts entered under tariff item 410a(iii).⁽¹⁾ A spokesman for G.H. Godsall Equipment Limited, which sells Euclid off-highway trucks in all the territory east of the Quebec-Ontario border, reported that the Company had been importing off-highway trucks from the United Kingdom, as well as from the United States, since 1954. In 1960 Godsall imported 13 from the United Kingdom and most of them were sold to users at from \$50,000 to \$80,000 depending on the model.

Of the imports from other countries, off-highway trucks and parts averaged a little under five million dollars annually during the years 1957 to 1961 inclusive, and imports under tariff items 410a(i) and 410a(ii) together averaged a little over seven million dollars annually. Judging by the details of imports in 1959, 1960 and 1961 which are contained in Appendix II, the value of imports entered under tariff item 410a(i) appears to have been considerably larger than that entered under tariff item 410a(ii); imports have included power shovels, excavators, draglines, loaders and conveyors. Imports under tariff item 410a(ii) may well have been relatively large in 1957 however, when a considerable amount of motorized equipment for trackless mining was purchased.

⁽¹⁾ The sharp increase in the value of imports from the United Kingdom in 1961 appears to have been due to the importation of a large dragline.

Tariff Item 410a(i)

- (i) Loading machines; shaker trough, belt trough, chain or elevating conveyors; air engines; flame-proof enclosed driving motors; of a class or kind not made in Canada, and parts of all motive power or machinery mentioned in this item, for use exclusively in mining operations

Free

Free

35 p.c.

The proposals which were made for changes in tariff item 410a(i) are contained in the table beginning on the following page.

The term "loading machines" in tariff item 410a(i) is interpreted to encompass a broad range of loading and excavating machines; power shovels, draglines, tractors equipped with loading devices, and a variety of ore loaders operated by air engines are entered under the item. Imports of these goods under tariff item 410a(i) and other tariff items supply a large part of the Canadian market; the range produced in Canada is relatively small.

The Machinery & Equipment Manufacturers' Association of Canada was critical of the inclusion of power shovels as loading machines, contending that the principal function of a power shovel was to excavate rather than to load. Their spokesman stated:(1)

"...our reason for wishing to exclude power...shovels or drag lines from 410a(i) as loading machines, and admittedly that only power shovels up to three cubic yard capacity are made in Canada, but if power shovels were continued to be permitted entry free of duty under that item, and as far as that can happen - rather than even the 7½ per cent which it would otherwise take...the effect would be that the competitive prices for a 3½ yard shovel which is imported is competitive with a three yard made-in-Canada shovel when there is no duty on it."

Under the proposal of the Association, power shovels, draglines and certain other kinds of machinery not made in Canada and now entered as "loading machines" would be dutiable under tariff item 427a which provides for duty-free entry under the Preferential Tariff and a rate of 7½ p.c. under the Most-Favoured-Nation Tariff. Subsequently during the public hearing the spokesman for the Association amended the proposal in a manner to permit the continued duty-free entry of loading machines of a class or kind not made in Canada.

(1) Proceedings, June 21, 1962, pages 2146-7.

Proposals Respecting Tariff Item 410a(i)

	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>General Tariff</u>
	Free	Free	35 p.c.
	10 p.c. Free	22½ p.c. Free	35 p.c. Free
	5 p.c.	12½ p.c.	35 p.c.

Machinery & Equipment Manufacturers' Association of Canada

Delete tariff item 410a(i) and replace by:

Loading machines, with built-in compressed air motors or built-in certified flame-proof enclosed electrical motors; of a class or kind not made in Canada, and parts of the foregoing, for use exclusively in mining operations

Conveyors with built-in compressed air motors or built-in certified flame-proof enclosed electrical motors; and parts of the foregoing, for use exclusively in mining operations

(1) of a class or kind made in Canada

(2) of a class or kind not made in Canada

Canadian Metal Mining Association

That a new classification "of a class or kind made in Canada" be established under tariff item 410a(i)

Quebec Asbestos Mining Association - No change

Proposals Respecting Tariff Item 410a(i) (Cont'd)

	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>General Tariff</u>
<u>The Coal Industry of Canada</u>			
Delete tariff item 410a(i) and replace by:			
Loading machines, including drag lines and power shovels; air engines; flame-proof enclosed driving motors; and parts of all motive power or machinery mentioned in this item, for use exclusively in mining operations			
- of a class or kind made in Canada	5 p.c.	12½ p.c.	35 p.c.
- of a class or kind not made in Canada	Free	Free	35 p.c.
Conveyors, including motive power for use in mining operations; parts of the foregoing			
<u>Calgary Power Limited</u>			
Amend tariff item 410a(i) "to ensure that conveyor idlers and other conveyor parts which are not in effect made in Canada are classified as a class or kind not made in Canada"			
<u>Atlas Copco Canada Limited</u>			
After "loading machines" add the words "including those that self-load, transport and unload"			
<u>British Mining Equipment Export Association</u>			
"Items of a class or kind made in Canada should be admitted at a B.P. rate of 5 p.c."			

A spokesman for the Quebec Asbestos Mining Association took strong exception to the proposal of the manufacturers respecting "loading machines", stating:⁽¹⁾

"...we are amazed at the utter unreasonableness of MEMAC's proposed amendment of tariff item 410a(i) for the express purpose of having power shovels of a nominal dipper capacity not made in Canada bear a duty of $7\frac{1}{2}$ per cent under tariff item 427a instead of free entry.

"All the facts regarding power shovels are recent enough not to need recounting with the exception of four, namely:

"(1) Until recently the largest power shovels made in Canada were of two cubic yards nominal dipper capacity;

"(2) It took five years to develop the $2\frac{1}{2}$ cubic yard power shovel now made in Canada;

"(3) The largest power shovel presently made in Canada is 3 cubic yards nominal dipper capacity;

"(4) When larger power shovels are, in fact, made in Canada and the made-in-Canada ruling thereby justified is issued, such shovels will automatically be excluded from entry under the present tariff item 410a(i)."

An official of John Inglis Company Limited, which supported the proposals of the Machinery & Equipment Manufacturers' Association of Canada announced it had made arrangements with a United States manufacturer whereby power shovels in a range of sizes exceeding three cubic yards dipper capacity would be made in Canada.

A spokesman for the coal industry stated that the proposal of the Machinery & Equipment Manufacturers' Association to exclude draglines and power shovels from tariff item 410a(i) would have disastrous consequences for strip mining, and he proposed that these goods should be specified in the item to guard against any changes in the existing administrative interpretation. Another spokesman for the coal industry described the use of draglines by the industry as follows:⁽²⁾

"Great technological improvements have been made in Canadian stripping operations where some of the world's largest earth-moving machinery is now employed...

"Actually...drag lines are today being made up to 105-110 cubic yards capacity - very large machines - and there is a limited market for such large machines in Canada. It is not likely that equipment of this size will ever be made in Canada."

(1) Proceedings, September 18, 1961, pages 1057-8.

(2) Ibid., June 20, 1962, page 1947.

The proposal by the Canadian Metal Mining Association that tariff item 410a(i) be extended to provide for goods of a class or kind made in Canada at a British preferential rate of 5 p.c. and a most-favoured-nation rate of $12\frac{1}{2}$ p.c. would involve a reduction in existing rates. For example, loading machines of a class or kind made in Canada are now entered under tariff item 427(1) at a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c.

The proposal of Atlas Copco Canada Limited to add to tariff item 410a(i) a provision for loading machines that "self-load, transport and unload" was explained by a spokesman for the company in the following terms:(1)

"Atlas Copco Canada Ltd...import a new type of loader manufactured by Atlas Copco A.B., Stockholm, Sweden, known as the Montevecchio Mine Dumper, a compressed air machine combining the features of a shovel loader, a self-moving wagon and dumper, which works on a full cycle as it self-loads, transports and unloads the ore within a certain distance, the distance being the length of the compressed air hose."

Loading machines now entered under tariff item 410a(i) would be free of duty under recommended item VIII(c) which specifies "Loading machines, including draglines and power shovels". The recommended change in wording is intended for clarification and to remove any doubts about the status of draglines and power shovels. Recommended item VIII(c) provides, in addition, for a British preferential rate of 5 p.c., and a most-favoured-nation rate of 15 p.c. on loading machines when of a class or kind made in Canada. This would result in a reduction in duties on such loading machines when for use in the mineral industries to the extent that they are now entered under tariff item 427(1) at a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c.

Canada produces a broad range of conveyors and parts, and supplies most of the requirements of the mineral industries. As a consequence, imports of conveyors under tariff item 410a(i) have probably not been very large in comparison with the value of Canadian production; they appear to have been valued at something less than \$400,000 in each of the years 1959, 1960 and 1961. It was pointed out at the public hearing, however, that the coal industry was using highly specialized conveying equipment, some of which, although not made in Canada, did not qualify for entry under tariff item 410a(i) as it is now worded. Their spokesman stated:(2)

"A special problem has been created by the restrictive categories of conveyor belts described in Item 410a(1). Unless belts fall within these descriptions they are classified under other items even though they are belts which are not made in Canada and are specially designed

(1) Proceedings, September 22, 1961, page 1757.

(2) Ibid., June 20, 1962, pages 1940-1.

for coal mining operations. These include relatively short, extensible, portable, self-propelled conveyors used at or close to the coal extraction faces. Their function is to gather the coal from machine and hand-loaded faces, usually in restricted working spaces, and deliver the product to the main haulage system. The prime requirements of these coal gathering types of conveyor are: (a) to bridge the gap between fast-moving mechanical mining units and the main haulage system (b) to operate in congested quarters (c) to be designed for use in the presence of explosive dusts and gases. These requirements have led to the design and use of conveyors that are significantly different from the simpler types of portable conveyors used in surface operations. They have little or no application in the metal mining industry, for the steep pitches prevailing in metal mining allow the ores to be naturally gravitated to car-loading points on the main haulage roads."

He also referred to newly developed cable belt conveyors, one of which had been imported and installed in a Canadian mine and had not qualified for entry under tariff item 410a(i). They consist basically of a rubber belt containing steel bars moulded transversely into the rubber, and supported by steel cables; the belt does not move over idlers but over pulleys which fit the cables on either side.

Recommended item VIII(b) provides duty-free entry for "Conveyors, of a class or kind not made in Canada", it also provides for "Parts, of a class or kind not made in Canada, for conveyors"; both are qualified in the preamble to the item by the words "for use in mining, quarrying, the development of mineral deposits or the processing of ores, metals or minerals". The first provision is intended to provide duty-free entry for complete conveyors of a class or kind not made in Canada, but does not make provision for parts; under the second provision, "parts", whether for replacement or to be integrated into new construction would be allowed duty-free entry if of a class or kind not made in Canada.

No provision is made in the Recommended Schedule for conveyors or for conveyor parts of a class or kind made in Canada; these would continue to be classified under the general provisions of the Tariff in such items as 427(1) and 446a.

Air engines are small reciprocating engines, driven by compressed air usually supplied from a central source through flexible hose. They are used extensively underground, to power loaders and other mining equipment. Most of them are deemed to be of a class or kind not made in Canada. They are specified in recommended item VIII(c).

Flame-proof enclosed driving motors provided for in tariff item 410a(i) are of particular interest to the coal industry because they are designed to meet the requirements of safety legislation.

Moreover, a spokesman for the coal industry stated:⁽¹⁾

"An electrical component, such as a motor, is frequently an integrally designed part of a complex mining machine such as a Joy Continuous Miner, a Dosco Miner or a Python face conveyor. As such, the motor must not only meet the above mentioned safety requirements but must also be precisely designed in size, shape of casing, fastening devices and other particulars to fit exactly and securely into the space designed for it in a specific mining machine. It is not sufficient, therefore, to specify for a motor of a certain horsepower, or even for such a motor approved for use in inflammable dusts and gases, but also for a motor of quite specific outside dimensions and shape."

The Canadian Electrical Manufacturers Association, on the other hand, sought to have all electrical apparatus excluded from the mining equipment schedule unless imported as integral parts of machines.

Recommended item VIII(c) specifies flame-proof enclosed driving motors, with duty-free entry if of a class or kind not made in Canada. In addition, the recommended item would provide a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. for flame-proof enclosed driving motors of a class or kind made in Canada; such motors are probably classified at present under tariff item 445g at a British preferential rate of 15 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c.

Tariff Item 410a(ii)

- (ii) Trucks or tractors, self-propelled, mounted on wheels or on endless tracks, including motive power, when of a class or kind not made in Canada, for use exclusively underground in mining operations; parts of the foregoing

Free

Free

$27\frac{1}{2}$ p.c.

The vehicles covered by this item are of a highly specialized nature and are not made in Canada.

Calgary Power Limited, which operates an open pit coal mine, proposed that tariff item 410a(ii) be amended to provide for tractor-trailer combinations of a class or kind not made in Canada. The Canadian Metal Mining Association, the Quebec Asbestos Mining Association, the coal industry and the British Mining Equipment Export Association proposed that the item be left unchanged. A spokesman for the Canadian Metal Mining Association stated:⁽²⁾

⁽¹⁾ Brief of the Coal Industry of Canada, June, 1962, page 6.

⁽²⁾ Proceedings, September 22, 1961, pages 1638-9.

"We see no justification for any change...The machinery affected is of a specialized type and already produced in quantity in the United States and the United Kingdom. It would be uneconomical to put into effect the very high duty rates required if Canadian manufacturers were to be afforded the opportunity of competing in these fields."

Recommended item VIII(b) specifies "Trucks, tractors, or shuttle cars, self-propelled, for use exclusively underground", duty-free from all countries. Self-propelled shuttle cars, which are often equipped with conveyors, have been named in the recommended item to ensure their inclusion. Because of the limited demand for them and the special nature of their design the Board thinks it unlikely that the production of these trucks, tractors and shuttle cars will be economically feasible in Canada. The recommended item therefore is not restricted by the phrase "of a class or kind not made in Canada". The phrase "including motive power" in tariff item 410a(ii) has not been inserted in the recommended item because the motive power would be entered as an integral part of the machine.

Tariff Item 410a(iii)

- (iii) Diesel-powered self-propelled trucks, mounted on rubber-tired wheels or on rubber-tired wheels and half-tracks, side or rear dump, having a rated capacity by struck volume, of not less than $9\frac{1}{2}$ cubic yards and by payload weight, of not less than 15 tons, and complete parts thereof, for off-highway use in carrying minerals, ores, rock, stone, sand, gravel and other excavated materials at mines, quarries, gravel and sand pits or at construction sites

Free	$7\frac{1}{2}$ p.c.	$27\frac{1}{2}$ p.c.
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This item provides for what are commonly called off-highway trucks, the axle-bearing weights and dimensions of which generally exceed those permitted on highways. There are, of course, other trucks which, while not meeting all the specifications in tariff item 410a(iii), may be used off the highway as well. In addition, there are tractor-trailer units with payload capacities of as much as one hundred tons which are not provided for in this tariff item. While some off-highway trucks were in use during the 1930's, there has been a rapid increase in their numbers and in their average size since the end of World War II.

In the period since 1952, imports of off-highway trucks and parts under tariff item 410a(iii) have varied from about \$2.7 million in 1954 to over \$10 million in 1956; they were valued at about \$4 million in 1960 and 1961. The United States and the United Kingdom, in that order, are the principal external sources of supply.

A number of companies in Canada including Sicard Incorporated, Montreal, International Harvester Company of Canada Limited, Hamilton, and Hayes Manufacturing Company Limited, Vancouver produce

complete trucks, or truck chassis, which meet the specifications in tariff item 410a(iii). Others produce trucks which, while not meeting all the specifications in tariff item 410a(iii), are in a competitive range. Sicard produces the largest number of trucks which meet the specifications of tariff item 410a(iii). That company entered the field in 1959 and was reported at the public hearing to be producing 25 to 30 off-highway trucks annually.

An industry spokesman estimated that there was a market for about 75 new units annually; demand would, of course, fluctuate widely from year to year. Altogether, well over half the market is still supplied from abroad, although the proportion supplied by Canadian manufacturers has been rising.

While the manufacturers of off-highway trucks import a large proportion, by value, of the parts they use, they do qualify for the importation of parts under tariff item 438d(2) and other tariff items which require that forty per cent of the factory cost of production of the trucks be incurred in the British Commonwealth. Accordingly, most of the parts of a class or kind not made in Canada are entered free of duty, while most other imported parts are entered under tariff item 410a(iii). Taking these factors into account, the protection which the off-highway truck producers have on their Canadian manufacturing operations under tariff item 410a(iii) is greater than the most-favoured-nation rate of $7\frac{1}{2}$ p.c. would indicate; it is probably between 15 and 20 p.c.

Sicard Incorporated made the following two alternative proposals respecting tariff item 410a(iii):

- 1 - That tariff item 410a(iii) be deleted, in which case the company believed the trucks would be entered under tariff item 438a which provides for duty-free entry under the British Preferential Tariff and $17\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff. The "complete parts thereof" which are now entered under tariff item 410a(iii) would probably be entered under tariff item 438f which provides for duty-free entry under the British Preferential Tariff and 25 p.c. under the Most-Favoured-Nation Tariff.
- 2 - That separate provisions be made under tariff item 410a(iii) for goods of a class or kind made in Canada and for those of a class or kind not made in Canada, at the following rates:

	<u>B.P.</u>	<u>M.F.N.</u>
of a class or kind not made in Canada	Free	$7\frac{1}{2}$ p.c.
of a class or kind made in Canada	Free	$22\frac{1}{2}$ p.c.

The Canadian Automobile Chamber of Commerce proposed that tariff item 410a(iii) be restricted by adding the words "when of a class or kind not made in Canada".

The retention of tariff item 410a(iii) in its present form was sought by the Canadian Metal Mining Association, the Quebec Asbestos Mining Association, the coal industry, the British Mining Equipment Export Association and by G.H. Godsall Equipment Limited, an importer of off-highway trucks.

Among the reasons advanced by Sicard Incorporated for an increase in duties were the disadvantages of small scale production and marketing. An official of the company stated that they were often unable to obtain quantity discounts on their purchases of parts. He said, in addition, that some of his competitors could reduce their marketing costs by offering a range of mining equipment in addition to off-highway trucks. In further support of increased duties, he stated:(1)

"...as it is now we are operating at a very low profit, and we feel that if we could increase our production of trucks it would decrease our costs, and therefore make more profit...

"...not by increasing our selling price. I mean by lowering our costs."

The company also complained that purchasing decisions by its customers often had to be approved by head offices in the United States and that protection was needed in such cases as an inducement to buy in Canada. A spokesman for the company stated:(2)

"We are talking about the approval and also about some measures and some influence that some of the larger suppliers have on the mines. We have been told in one particular instance that they would prefer to buy a certain make of truck because that particular company was buying copper from it. There we feel that this protection is of necessity and would definitely improve our position."

With respect to his alternative proposal which called for a most-favoured-nation rate of 22½ p.c. on off-highway trucks, he pointed out that machinery of a class or kind made in Canada was dutiable at that rate under tariff item 427(1). He asserted that off-highway trucks were more akin to machinery than to trucks in the ordinary sense of the word.

The spokesman for the Canadian Automobile Chamber of Commerce pointed out that, when tariff item 410a(iii) was established, few if any heavy duty off-highway trucks were being made in Canada. He expressed concern at the continuation of the item since such trucks were being made in Canada.

(1) Proceedings, September 21, 1961, page 1441.

(2) Ibid., page 1442.

A spokesman for G.H. Godsall Equipment Limited expressed the view that the proposal of the Chamber to qualify the item by adding the words "of a class or kind not made in Canada" was tantamount to proposing that the item be deleted since he doubted that any off-highway trucks would be classified as "of a class or kind not made in Canada". He said that even under existing rates of duty the prices of Euclid trucks imported into Canada were about 15 per cent higher than those of Sicard Dart trucks, and he had lost a great deal of business to them. He mentioned a number of other factors which, he said, would make it very difficult for the company to carry on as an importer if duties on off-highway trucks were increased. Tractor-trailers capable of carrying payloads up to one hundred tons were, he said, coming into increasing use. The tractor is entered duty-free under tariff item 409m, and the trailer is entered under tariff item 422a which provides for duty-free entry under the British Preferential Tariff and a most-favoured-nation rate of $7\frac{1}{2}$ p.c. In addition, he said mining companies were able to import used equipment which was competitive with the trucks his company was offering for sale.

A spokesman for the Quebec Asbestos Mining Association pointed out that if the proposals of the manufacturers were implemented, users of off-highway trucks already imported would have to pay higher duties on parts for those vehicles as well as on new vehicles and parts therefor.

Recommended item X would continue the provisions of tariff item 410a(iii) with some changes in wording; the Board recommends an increase in the British preferential rate from free to 5 p.c. and in the most-favoured-nation rate from $7\frac{1}{2}$ p.c. to 10 p.c.

Tariff Item 410a(iv)

- (iv) Mine car loaders, self-propelled, single-bucket type, the bucket of which loads at the front and moves over the loader to discharge at the rear, n.o.p., and parts thereof, for use exclusively in mining operations

Free

10 p.c.

35 p.c.

The goods which have in the past been entered under tariff item 410a(iv) are understood to have been air-operated machines specially designed for loading mine cars. According to the Machinery & Equipment Manufacturers' Association of Canada they were at one time made in Canada but were not being made at the time of the public hearing. That being the case, such machines are probably now being entered under tariff item 410a(i) as loading machines, free of duty under the British Preferential and the Most-Favoured-Nation Tariffs rather than under tariff item 410a(iv).

The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410a(iv) be deleted. The wording which the Association proposed for tariff item 410a(i) would probably encompass the machines now described in tariff item 410a(iv). The Canadian Metal Mining Association and the coal industry both proposed

that a new classification under tariff item 410a(iv) be created to provide duty-free entry under the British Preferential and Most-Favoured-Nation Tariffs for the goods when of a class or kind not made in Canada. The Quebec Asbestos Mining Association and the British Mining Equipment Export Association proposed that the item be left unchanged.

Recommended item VIII(c) specifies "Loading machines, including draglines and power shovels" duty-free if of a class or kind not made in Canada and a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. if of a class or kind made in Canada. It is intended to encompass the loaders now covered by tariff item 410a(iv).

Existing Item 410b

410b Machinery and apparatus for use in washing or dry cleaning coal at coal mines or coke plants; machinery and apparatus for use in producing coke and gas; machinery and apparatus for use in the distillation or recovery of products from coal tar or gas; parts of the foregoing, not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel

Free

10 p.c.

12½ p.c.

Most of the imports entered under tariff item 410b in recent years have consisted of equipment for the processing of natural gas, and recommendations respecting the tariff treatment of such goods are contained in the first volume of this Report. There still remain the provisions in the item which affect the coal industry and the primary iron and steel industry. According to a sample survey of imports under tariff item 410b during the twelve months beginning October 1, 1959, of total imports valued at \$1.6 million about \$200,000 consisted of machinery and equipment for use in cleaning coal and for the production of coke and related products.

A variety of machinery and equipment, some of it made in Canada and some not, is used in these operations. A spokesman for the coal industry mentioned that, in addition to the equipment covered by tariff item 410b, complex drying processes were sometimes required after the washing of coal. Drying equipment would probably not qualify for entry under tariff item 410b as it is now worded.

The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410b be replaced in part by the following two items:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Coal cleaning machinery; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Screens, ore and coal processing; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

Their proposal would have the effect of restricting the scope of the item to include only some of the machinery and apparatus at present entered for washing or dry cleaning coal; equipment for the production of coke and related products would be excluded from the item. On the other hand, the most-favoured-nation rate on coal cleaning machinery of types of a class or kind not made in Canada would be reduced from 10 p.c. to free. It is unlikely that many screens would be deemed to be of a class or kind not made in Canada.

The Industrial Instrument Manufacturers Association proposed:(1)

"...that in respect to that portion of tariff 410b relating to apparatus for use in washing or dry cleaning coal at coal mines or coke plants, and apparatus for use in producing coke and gas the named exceptions be extended to include industrial measuring, recording, indicating and controlling instruments whether electrical, pneumatic or mechanical, and all automatic control valves."

When the spokesman for the Association was asked if Canadian instrument manufacturers could produce automatic control valves of all sizes, he replied:(2)

"...we are primarily talking about a diaphragm operated control valve, either electric or pneumatic, and we are talking about sizes below ten inches. We have two companies in particular well equipped to do this in Canada."

The coal industry proposed that tariff item 410b be left unchanged except that the word "screening" be inserted before the word "washing" in the existing item. Eimco Process of Canada Limited and the British Mining Equipment Export Association proposed that the item be left unchanged.

The equipment for the coal industry and the primary iron and steel industry now entered under tariff item 410b would be provided for in two items in the schedule recommended by the Board.

(1) Letter to the Board dated July 14, 1961.

(2) Proceedings, September 19, 1961, page 1229.

Recommended item IX(b) specifies "Machinery and apparatus for use in washing, screening, drying or dry cleaning coal". If of a class or kind not made in Canada, duty-free entry under the British Preferential Tariff would be continued, and the rate under the Most-Favoured-Nation Tariff would be reduced from 10 p.c. to free. If of a class or kind made in Canada, the British preferential rate would be increased from free to 5 p.c. and the most-favoured-nation rate would be increased from 10 p.c. to 15 p.c. The recommended addition of the words "screening" and "drying" is intended to broaden the scope of the item as it applies to equipment for the preparation of coal. The phrase "at coal mines or coke plants" in tariff item 410b is not contained in the recommended item; this would eliminate the restriction respecting the location of machinery for use in washing or dry cleaning coal. Also, the provision for parts in recommended item IX(b) does not continue the phrase "not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel".

Recommended item XI would continue the provisions in tariff item 410b for equipment used in producing coke and related products, with the same changes in rates as those recommended for the coal preparation equipment provided for in recommended item IX(b). The term "coal gas" rather than "gas" is used in recommended item XI in order to exclude equipment used in the processing of natural gas, which is dealt with in the first volume of the Report.

Existing Item 410d

410d Well-drilling machinery and apparatus, and parts thereof,
for use in drilling for water, natural gas or oil, or in
prospecting for minerals, not including motive power;
 machinery and apparatus of a class or kind not made in
 Canada for maintenance and testing purposes in connection
 with gas or oil wells; well-packers and parts thereof,
 for oil or gas wells

Free

Free

Free

This volume of the Report is only concerned with the portions of tariff item 410d which are underlined above. It is doubtful that much, if any, well drilling equipment for use in prospecting for minerals is entered under tariff item 410d because there is more specific provision for the types of drilling equipment so used in tariff items 410 l, 410m and 848a. On the other hand, while no statistics on the subject are available, it is believed that a significant volume of imports of well drilling equipment for use in drilling for water is entered under tariff item 410d. A variety of equipment, including diamond drills, may be used in drilling for water, but cable-tool rigs are understood to be the kind most commonly used in drilling the relatively shallow holes usually required.

No representations were made at the public hearing either by suppliers of cable-tool rigs or by water well drilling contractors. The Canadian Water Well Contractors Association which was established after the public hearings were completed, informed the Board that they wished the provisions of tariff item 410d relating to well-drilling machinery retained; the one change that they requested was that motive power be allowed entry under tariff item 410d as it is in tariff item 848; because of capacity and engineering considerations, the drilling units are always purchased with the motive power included. The Association stated that water well drilling rigs are not manufactured in Canada, and are imported mainly from the United States. Because water well drilling rigs are built to drill holes of relatively small diameter and depth, they are not normally used for any purpose other than drilling for water.

The Machinery & Equipment Manufacturers' Association of Canada, while not professing a direct interest in water well drilling equipment, proposed that tariff item 410d be deleted and replaced by the following:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Water well drilling rigs; parts of the foregoing	Free	Free	Free

Recommended item VII(a) specifies bits and drills of all kinds for use in drilling for water or minerals; it is intended to encompass the equipment used in drilling for water or in prospecting for minerals which is now provided for in tariff item 410d. If of a class or kind not made in Canada duty-free entry would be continued, but otherwise the British preferential rate would be raised to 5 p.c. and the most-favoured-nation rate to 15 p.c.

Existing Item 410f

410f (1) Machinery and appliances of iron or steel, of a class or kind not made in Canada, and elevators, and machinery of floating dredges, for use exclusively in alluvial gold mining; parts of all the foregoing

Free	Free	Free
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(2) Complete dredging plant, including integrated floating and shore discharge pipeline and booster station equipment, for development of mineral deposits; parts of all the foregoing

Free	Free	25 p.c.
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Statistics of imports entered under the two parts of tariff item 410f have been recorded together since tariff item 410f(2) was established in 1952. However, the value of imports under tariff item

410f(1) is believed to have been small in recent years; it reached a peak of \$966,000 in 1948 but was only \$65,000 in 1951. Output of alluvial gold mines declined sharply from the post-war peak of \$4,145,000 in 1950, to \$2,466,000 in 1961.

Yukon Consolidated Gold Mines Limited has by far the largest alluvial gold mining operation, and it is expected to cease production within the next few years. Alluvial gold mining was commenced on the Saguenay River in 1961 but not on nearly as large a scale as that on the Yukon. Many of the companies in the industry are in receipt of subsidies under the Emergency Gold Mining Assistance Act.

Considerable use has, on the other hand, been made of tariff item 410f(2); imports under the item reached their highest levels in the years between 1953 and 1958. Imports under tariff items 410f(1) and 410f(2) together reached a peak of \$4.1 million in 1954 and averaged over \$1.5 million annually over the three year period from 1955 to 1957. They were valued at \$408,944 in 1961. The high level of imports between 1953 and 1958 was undoubtedly associated with the large dredging operations which were under way at Knob Lake, Steep Rock Lake and Black Lake. Most of the machinery and apparatus used in dredging, including the hulls of dredges, are of types which are or can be made in Canada. A spokesman for the Canadian Electrical Manufacturers Association pointed out that a large proportion of the apparatus used in dredging was electrical in nature, and was of types produced by members of the Association. He complained about the difficulty of meeting foreign competition in cases where the goods qualified for entry free of duty under tariff item 410f(2).

The Machinery & Equipment Manufacturers' Association of Canada proposed the deletion of tariff items 410f(1) and 410f(2); the Canadian Metal Mining Association and the British Mining Equipment Export Association proposed that they be retained.

Recommended item VIII(c) provides for "Machinery and apparatus, including the hulls of dredges, floating or shore discharge pipeline or booster station equipment, to be incorporated into dredging plants".

Complete dredging plants consist of suitable boat hulls together with a great variety of machinery and equipment of various kinds, most of which are made in Canada. The Board is recommending that the individual machines and articles of equipment be subject to class or kind determination; those of a class or kind not made would be entered free of duty under all Tariffs, and those made would be dutiable at a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c.

The Board is not recommending that the provision in tariff item 410f(1) for "Machinery and appliances of iron or steel, of a class or kind not made in Canada, and elevators..." be continued, but many of the articles now entered thereunder would probably be covered by the eo nomine provisions of recommended items VII and VIII.

Existing Item 410g

410g Articles for use in the metallurgy or smelting of iron, namely: machinery and apparatus for sintering or nodulizing iron ore, concentrated or not, or flue dust; machinery and apparatus for use in the construction, equipment and repairs of blast furnaces for smelting iron ore, such machinery and apparatus to include hot blast stoves and burners, blast piping and valves connecting the blowing engines with the furnace, scale cars, charging and hoisting apparatus, blast furnace gas piping, cleaners and washers; parts of the foregoing, not including structural iron work; valves ten and one-half inches or less in diameter, nor pipes of iron or steel

Free

5 p.c.

5 p.c.

This item provides for equipment used in what a spokesman for the iron and steel industry described as the "blast furnace area". In addition, the part of the item providing for machinery and apparatus for sintering or nodulizing iron ore has been used in recent years to import goods for use at iron ore mines in the beneficiation of the ores before shipment, and also at some of Canada's largest non-ferrous metal mining and refining operations to recover iron from the slag heaps. Imports under tariff item 410g reached a peak of \$2,184,000 in 1960, undoubtedly due in part to imports for these latter uses; they were valued at \$689,209 in 1961.

A spokesman for five iron and steel producers described the construction of a blast furnace and the use of tariff item 410g in the following terms.(1)

"The blast furnace is a construction. Columns are fabricated and erected on a foundation. A furnace is erected on top of the columns and so on up to a couple of hundred feet in the sky. Conceivably there will be certain steel sections that would be imported for fabrication into the components for the blast furnace. Refractories would be imported for the lining of that blast furnace... There are items of equipment that in effect might be considered to be ancillary to a blast furnace that generally speaking cannot be procured in Canada, and some of these items would account for the use to which we have put the 410 series. This pretty well applies through the 410 series, that generally speaking you buy the majority of the stuff in Canada and it is the odd item, and again the market isn't large enough to warrant ever dealing in Canada. How, from an administration point of view this could ever be defined in tariff to provide for duty-free entry of it, I do not know."

(1) Proceedings, September 19, 1961, pages 1251-2.

The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410g and other items be deleted and replaced by the following item:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Metallurgical and metal melting furnaces, non-electric; parts of the foregoing			
(1) of a class or kind made in Canada	12½ p.c.	17½ p.c.	20 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

The Industrial Instrument Manufacturers Association proposed that "industrial measuring, recording, indicating and controlling instruments, whether electrical, pneumatic or mechanical, and all automatic control valves be specifically excepted" from the provisions of tariff item 410g.

The Canadian Metal Mining Association proposed that there be no change in the item. The iron and steel industry did not make any proposals; the position they adopted is described in Section 3, on pages 36 and 37. Eimco Process of Canada Limited proposed that the item be left unchanged.

Recommended item IX(a) would continue the provisions of tariff item 410g without substantial change. Duty-free entry from all countries would be provided, whereas existing item 410g provides a most-favoured-nation and a general rate of 5 p.c. The exclusion of structural iron work, valves ten and one-half inches or less in diameter, and pipes of iron or steel from entry as parts under tariff item 410g is not continued in the recommended item.

Existing Item 410h

410h Equipment and parts thereof for distributing stone dust in mines

Free	Free	10 p.c.
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The equipment provided for in this tariff item is used to blow limestone dust onto the floors, walls and ceilings of passages in coal mines. The limestone dust causes the coal dust to settle, reducing the danger of explosion. The equipment is not made in Canada and

the market for it in Canada is small. The coal industry and the British Mining Equipment Export Association proposed that the item be retained in the Tariff, and no opposition to the item was expressed.

Recommended item XIII(a) reproduces the wording of tariff item 410h without change, and provides for duty-free entry from all countries; thus, the general rate of 10 p.c. would be removed.

Existing Items 410i and 410j

410i (1) Miners' rescue appliances, designed for emergency use in mines, where artificial breathing is necessary in the presence of poisonous gases, including high pressure oxygen pumps for use exclusively in connection with such appliances, and automatic resuscitation apparatus for artificial breathing to aid in the saving of human life, and parts of all the foregoing

Free

Free

Free

(2) Combustible gas indicators, for detecting explosive gases or vapors; methane detectors; carbon monoxide detectors and continuous indicators and recorders; carbon monoxide alarms; pyrotannic detectors for determining the presence and quantity of carbon monoxide in the blood; inhalators for use in reviving victims of carbon monoxide poisoning; pocket gas respirators, dust respirators, paint and lacquer spray respirators, fume and smoke masks, and hose mask outfits complete with face piece, harness, air line and air pump or blower, designed for the protection of firemen and industrial workers; special safety goggles, designed for eye protection of miners, welders, foundrymen and other industrial workers employed in hazardous work; parts of all the foregoing

Free

Free

Free

410j Miners' acetylene lamps and parts thereof; miners' safety lamps and parts thereof; accessories for cleaning, filling, charging, opening and testing miners' lamps; battery renewal preparations for miners' electric safety lamps; all for use exclusively in mines

Free

Free

Free

Imports under tariff item 410i have averaged about \$2 million annually in recent years and those under tariff item 410j have averaged about \$500,000. In both cases the United States and the United Kingdom are the principal sources of supply. Very little of the equipment described in these two items is made in Canada,

although some of the supply houses dealing in it do carry out some assembly work in Canada. A spokesman for Mine Safety Appliances Company of Canada Limited stated:⁽¹⁾

"The company manufactures or assembles in its Toronto plant a growing list of items with safety applications where it is practical to so do. Many items such as oxygen breathing apparatus, gas detecting instruments, miners lamps, etc. will always require to be imported or at least in part and the application of the duty would only incur a further price hardship on Canadian consumers, thus discouraging the use of such equipment which is so essential to the safety of Canadian workmen."

The Canadian Metal Mining Association, the Quebec Asbestos Mining Association, Mine Safety Appliances Company of Canada Limited and the British Mining Equipment Export Association all requested that the duty-free status of both items be retained. Atlas Copco Canada Limited requested the retention of tariff item 410j.

The coal industry proposed that the word "poisonous" in tariff item 410i(1) be changed to "noxious"; otherwise, they proposed that the items be left unchanged. Frequently the gases encountered in coal mines are harmful to humans but are not "poisonous".

Recommended items XIII(a) and XIII(b) would encompass the goods now classified under tariff items 410i(1) and 410i(2). The Board has, however, recommended substantial changes in wording and arrangement. The existing provisions seem unnecessarily detailed and in some cases restrictive.

The goods now entered under tariff item 410j would be provided for in recommended item XIII(c) with continuing duty-free entry from all countries. Some changes in wording have been recommended, mainly to encompass parts for all the equipment specified in the item rather than only parts for lamps. While the Board learned that miners' acetylene lamps are virtually obsolete, it recommends that provision for their duty-free entry be retained while the possibility of importations remains.

Existing Item 410k

410k Machinery and apparatus, of a class or kind not made in Canada, for use exclusively in handling ore and other materials to be charged into a blast furnace or an electric smelting furnace, from the dock, car or stock pile, at the smelting works

Free

Free

Free

(1) Proceedings, September 21, 1961, page 1490.

This item has been used mainly by the primary iron and steel industry and by smelters of non-ferrous metals. Imports under it have not been large, probably because cranes and most other equipment used in discharging ores are now made in Canada. Imports entered under tariff item 410k reached a peak in value of \$193,091 in 1951 and were valued at \$44,217 in 1961.

The Machinery & Equipment Manufacturers' Association of Canada proposed the deletion of this item.

The Canadian Metal Mining Association proposed that the clause "of a class or kind not made in Canada" be deleted and that the item be changed to read as follows:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Machinery and apparatus for use in handling ore and other materials to be charged into a blast furnace or an electric smelting furnace or to be charged into apparatus for chemical conversion, extraction, reduction or recovery in metallurgical operations, from the dock, car or stockpile, at a smelting or metallurgical works; parts of the foregoing	Free	Free	Free

The Aluminum Company of Canada and the British Mining Equipment Export Association made proposals which were substantially the same as that of the Canadian Metal Mining Association. A spokesman for the Aluminum Company of Canada Limited stated:⁽¹⁾

"Certain items which we have installed for handling ore and other materials at the dock, car and stock pile now enter free under tariff item 427a at the B.P. rate. We anticipate that machinery of approximately the same type may in future be considered to be of a class or kind made in Canada which will mean an increase in the cost of parts of the existing items. Changing tariff item 410k to the wording of our proposal will assure that such parts will continue to enter free."

Recommended item IX(a) contains a provision which reproduces tariff item 410k with minor changes in wording, and continuing duty-free entry from all countries is recommended.

⁽¹⁾ Proceedings, September 22, 1961, page 1700.

Existing Tariff Item 410 1

410 1 Coal crushers, ore crushers, rock crushers, stamp mills, grinding mills, rock drills, percussion coal cutters, coal augers, rotary coal drills, n.o.p., and parts of all the foregoing, for use exclusively at mines, at quarries, or in metallurgical operations or in the beneficiation of non-metalliferous ores

5 p.c. 15 p.c. 25 p.c.

The following proposals respecting this item were made.

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
<u>Machinery & Equipment Manufacturers' Association of Canada</u>			
Delete and replace by:			
Rock drills; coal drills, parts of the foregoing	5 p.c.	15 p.c.	25 p.c.
Drill bits containing tungsten carbide	5 p.c.	15 p.c.	25 p.c.
Rotary mills of the ball rod, pebble and autogenous (aerofall) types; parts of the foregoing	5 p.c.	15 p.c.	25 p.c.
Coal cutting machines; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Roll-type crushers, jaw-type crushers and gyratory-type crushers; parts of the foregoing	5 p.c.	15 p.c.	25 p.c.

Canadian Metal Mining Association

Establish the following classifications under existing item:

(1) of a class or kind made in Canada	5 p.c.	7½ p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	25 p.c.

The Coal Industry

Delete the words "percussion coal cutters". These to be provided for in the following new item:

Coal cutting machines; parts of the foregoing	Free	10 p.c.	10 p.c.
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	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
<u>Quebec Asbestos Mining Association</u>			
No change			
<u>Aluminum Company of Canada Limited</u>			
Change the most-favoured-nation rate to		7½ p.c.	
<u>Atlas Copco Canada Limited</u>			
Establish a separate item to provide for:			
(a) Rock drills of a class or kind made in Canada and parts therefor	5 p.c.	15 p.c.	25 p.c.
(b) Rock drills of a class or kind not made in Canada and parts therefor	Free	7½ p.c.	35 p.c.
<u>Hughes Tool Company</u>			
That roller-cone bits used in mining or quarrying operations be placed in a separate eo nomine classification with the following rates	Free	Free	
<u>British Mining Equipment Export Association</u>			
That coal cutting machinery carry the following British preferential rate	Free		
<u>Canadian Diamond Drilling Association</u>			
Add the words "diamond set bits excepted from the above" (see also their proposal respecting tariff item 410m)			

Imports entered under tariff item 410 1 are recorded under four headings as follows:

	<u>Imports (\$000)</u>	
	<u>1960</u>	<u>1961</u>
Ore crushers, rock crushers, stamp mills, grinding mills, n.o.p., and parts	2,387	2,588
Coal crushers, percussion coal cutters, coal augers, rotary coal drills, n.o.p., and parts	173	263
Rock drills, n.o.p., and complete parts, except bits	2,279	2,120
Rock drill bits ^(a)	<u>1,446</u>	<u>1,127</u>
Total	6,285	6,098

(a) Includes imports of rock drill bits under tariff item 446k as well.

Ore and Rock Crushers, Stamp Mills and Grinding Mills - Some indication of trends in the market for ore crushers, rock crushers, stamp mills and grinding mills is provided in the following table.

<u>Year</u>	<u>Canadian Factory Shipments</u>		<u>Imports</u>
	<u>Ball and Rod Grinding Mills</u>	<u>Jaw and Gyratory Crushers</u>	<u>Ore crushers, rock crushers, stamp mills, grinding mills, n.o.p., and parts, s.c. 5477</u>
	<u>(\$000)</u>	<u>(\$000)</u>	<u>(\$000)</u>
1951	278	1,204	1,984
1952	780	2,903	2,356
1953	966	805	2,243
1954	1,042	819	2,412
1955	816	..	2,795
1956	2,379	3,200	4,537
1957	2,362	2,253	6,266
1958	1,356	1,950	2,351
1959	1,518	2,055	2,766
1960	2,167	1,548	2,387
1961	..	..	2,588

The table understates the proportion of the market supplied by Canadian producers for two reasons. First, the statistics of factory shipments exclude shipments of parts. Second, there is some Canadian production of crushers other than those of the jaw and gyratory types, but only the latter types are recorded separately in the statistics of shipments.

Industry representatives indicated that virtually all the Canadian market for ball and rod mills, and the larger sizes of jaw type crushers, were supplied by Canadian producers. Imports are believed to consist largely of gyratory type crushers, and, to a lesser extent, of hammer mills and of the smaller sizes of jaw crushers.

While gyratory crushers have been produced in Canada for many years, buyers have often shown a preference for the Simons Ore Cone Crusher which, up to the time of the public hearing, was imported from the United States. John Inglis Company Limited, however, has recently made arrangements to manufacture this type of crusher in Canada. Consequently, it is to be expected that in future a much larger proportion of the Canadian market for crushers will be supplied by Canadian producers.

Stamp mills, otherwise known as drop-hammer type crushers, are now seldom used by the mineral industries.

At the public hearing, the spokesman for the Machinery & Equipment Manufacturers' Association of Canada enlarged on his proposals respecting crushers and grinding mills as follows:(1)

"...at the present time 410-1 covers crushers for specific use only, and for other crushers we would like to say that if a specific item is drafted for crushers this is a suggestion: Crushers of the roll, jaw and gyratory-type, and also including hammer type-crusher (hammer mills) and drop hammer-type crushers (stamp mills) for the crushing of rock, ore or coal...

...Along the same lines is our suggestion regarding [rotary mills]. In 410-1 'grinding mills' come in for a specific purpose, but there are other ball mills used in pulverizing coal, which are presently not admissible under 410-1. So that in the case of [rotary mills] again, what we would propose there is that the words 'for the grinding of rock or ore or coal' - that is for your rotary mills which are also of a type for the grinding of rock or ore - that it be restricted to those uses only."

In addition, he expressed no objection to a suggestion which was made that "impactors" should be provided for along with hammer mills. An impactor was said to be a new type of equipment similar to a hammer mill; it was stated that an impactor was used for primary grinding while a hammer mill was used for secondary crushing. The spokesman for the Machinery & Equipment Manufacturers' Association said that impactors were not being made in Canada.

An official of the Aluminum Company of Canada Limited pointed out that crushers and other machinery when imported for the uses specified in tariff item 410 1 are all dutiable at a most-favoured-nation rate of 15 p.c., whereas those of a class or kind not

(1) Proceedings, September 18, 1961, pages 1003-4.

made in Canada when imported for other uses are dutiable at a most-favoured-nation rate of only $7\frac{1}{2}$ p.c. under tariff item 427a.

Recommended item VIII(a) specifies "Crushing and grinding machines". The Board recommends the same rates of duty as those now carried by tariff item 410 l. While the wording would be altered, the coverage of the recommended item is intended to be the same as the existing provisions in tariff item 410 l for crushers, stamp mills and grinding mills.

Coal Crushers, Percussion Coal Cutters,
Coal Augers and Rotary Coal Drills, N.O.P. - Imports of this equipment have averaged about \$130,000 in value annually over the past five years; they were valued at \$263,000 in 1961.

Coal crushers, while not widely used, are required at some mines. Because of the friability of coal, specially designed coal crushers must be used. They would be provided for in recommended item VIII(a) with no change in rates of duty.

Percussion coal cutters are used in preparatory work in mines, although not as much as in earlier years. The Board was informed that, except for one make used in connection with the loading of coal by hand, percussion coal cutters were not being made in Canada. Recommended item VIII(c) specifies "Coal cutting machines", duty-free if of a class or kind not made in Canada and subject to the same rates as tariff item 410 l if of a class or kind made in Canada.

The term "coal auger" has been applied to small hand tools, sometimes used to bore shot holes for explosives; such augers are probably classified under tariff item 410 l. Recommended item VII(a) specifies "Bits and augers of all kinds", duty-free if of a class or kind not made in Canada, and with the same rates as tariff item 410 l if of a class or kind made in Canada.

The term "rotary coal drills, n.o.p." in tariff item 410 l is understood to encompass air-operated machines. Hand-operated rotary coal drills might also be encompassed by the phrase or they might be classified as "augers", also provided for in tariff item 410 l. The Board was informed that neither type was used very extensively. Air-operated rotary coal drills were said not to be made in Canada, although some hand-operated types may be made in Canada. Rotary coal drills would be classified as drills in recommended item VII(a), duty-free if of a class or kind not made in Canada and carrying the same rates as tariff item 410 l if of a class or kind made in Canada.

Rock Drills - Most of the rock drills used in mining are small, portable, percussion-type pneumatically operated machines capable of drilling holes from less than one inch to six or more inches in diameter and up to about thirty feet in depth. There are larger drills as well; for example, tractor-mounted drills capable of drilling holes up to nine inches in diameter are coming into increasing use.

Pneumatic rock drills in the sizes most commonly used have been made in Canada for many years. The principal producers are Canadian Ingersoll-Rand Company Limited and Joy Manufacturing Company (Canada) Limited, both of them associated with United States companies. Precise data on the market for rock drills in Canada cannot be published because two firms account for a large part of Canadian production. The data in the following table, however, provide some indication of the value of the market.

Year	Factory Shipments of Rock Drills and Diamond Drills ^(a) (\$000)	Imports of Rock Drills and Parts, s.c. 5481 ^(b)			
		United Kingdom (\$000)	Sweden (\$000)	United States (\$000)	Total (\$000)
1939	..	112	*	682	794
1948	..	57	16	818	892
1949	..	53	173	1,111	1,337
1950	..	102	881	755	1,739
1951	..	110	2,083	1,193	3,390
1952	..	110	1,424	1,697	3,238
1953	..	166	1,528	1,792	3,489
1954	..	104	861	1,374	2,345
1955	.. ^(c)	100	1,067	1,558	2,740
1956	4,288	150	961	1,887	3,010
1957	2,948	235	368	2,626	3,233
1958	2,265	237	133	1,559	1,960
1959	1,682	398	225	1,524	2,183
1960	1,714	303	255	1,664	2,279
1961	..	154	287	1,649	2,120

(a) Excludes parts.

(b) Prior to 1956 includes imports of rock drill bits.

(c) In the years 1952 to 1955 inclusive, the value of shipments of diamond drills varied from as little as \$461,000 in 1954 to as much as \$948,000 in 1955.

Beginning around 1948, improved drilling equipment and drilling methods, many of them developed commercially in Sweden, were introduced in Canada. Detachable bits with tungsten carbide tips largely replaced integral steels for drilling. They were more efficient and more durable in most applications. Lighter and more efficient drills designed for use with the new bits were introduced. They weighed only about one hundred pounds whereas those formerly in use had weighed between two and three hundred pounds. They were equipped with "air legs" to push the drill forward pneumatically as drilling proceeded whereas formerly this had been done manually. New and improved techniques of drilling were introduced along with the new equipment. Altogether, very significant savings in drilling time and costs have been realized.

The introduction of the Swedish drilling methods into Canada in 1948 was followed by a very sharp rise in imports of rock drills and parts from Sweden. Canadian manufacturers were producing the newer

types of drills themselves as early as 1950, but there was continual technological progress, first one manufacturer, then another obtaining a competitive advantage. Altogether, it is clear from the statistics that the Swedish manufacturers, as well as those in the United Kingdom, have managed to retain a portion of the Canadian market. While the value of imports from the United States has been far larger than that from all other countries combined, these imports are believed to have consisted largely of types and sizes not made in Canada.

The Machinery & Equipment Manufacturers' Association of Canada proposed that the rates on rock drills entered under tariff item 410 1 be left unchanged. The Canadian Metal Mining Association proposed duty-free entry for those of a class or kind not made in Canada and a reduction of the most-favoured-nation rate from 15 p.c. to 7½ p.c. on those of a class or kind made in Canada. A spokesman for the Association stated:(1)

"The present 15% seems unduly high. The change would also eliminate an anomaly in the tariff whereby rock drills for road work are now admitted at a lower rate, if of a class or kind not made in Canada.

"Certain other countries have pioneered successfully in the manufacture of new types of drills; it is therefore recommended that a new classification be established for goods 'of a class or kind not made in Canada and parts thereof'."

Recommended item VII(a) would encompass the rock drills now entered under tariff item 410 1. There would be no change in rates of duty on those of a class or kind made in Canada, but duty-free entry would be provided for those of a class or kind not made in Canada.

Rock Drill Bits - Rock drill bits with tungsten carbide inserts(2) were produced in Canada as early as 1946. Statistics of factory shipments prior to 1954 are not available, but the extent to which tungsten carbide rock drill bits have replaced other types in recent years is reflected in the following table.

Canadian Factory Shipments of Rock Drill Bits

<u>Year</u>	<u>Tungsten Carbide Drill Bits</u> (\$000)	<u>Other Drill Bits (excluding diamond)</u> (\$000)
1954	3,387	1,518
1955	5,136	1,195
1956	6,629	1,819
1957	8,466	960
1958	6,789	533
1959	5,728	..
1960	4,981	..
1961	4,145	..

(1) Proceedings, September 22, 1961, page 1640.

(2) Tungsten carbide inserts are discussed under the heading of Existing Item Ex 410 1.

The rock drill bits produced in Canada consist mainly of those used in percussion-type rock drills. They are the bits most commonly used in mining although there are others, some of which are not made in Canada, which are also used. The following table provides a good indication of the Canadian market for rock drill bits of the types used in mining.

Apparent Canadian Market for Rock Drill Bits

Year	Canadian Factory Shipments (\$000)	Imports, s.c. 5531 ^(b)					Imports as p.c. of Supply
		United Kingdom (\$000)	Union South Africa (\$000)	Sweden (\$000)	United States (\$000)	Total (\$000)	
1956	8,448	9	1	798	788	1,600	16.0
1957	9,426	176	3	800	1,015	2,032	17.6
1958	7,322	39	328	363	816	1,558	17.7
1959	5,728(a)	17	138	332	772	1,261	..
1960	4,981(a)	20	94	294	1,035	1,446	..
1961	4,145(a)	16	24	341	716	1,127	..

(a) Tungsten carbide drill bits only.

(b) S.c. 5531; Tariff items 410 1, 446k(1) and 446k(2).

Excludes imports under tariff items 399a, 848 and 848a.

While the United States has been the largest external source of supply, imports from that country, except in years of abnormally high demand, are believed to have consisted largely of types and sizes of bits not made in Canada. Imports from Sweden and South Africa, on the other hand, are believed for the most part to have been directly competitive with types produced in Canada.

Judging from information received by the Board, it would appear that imports of tungsten carbide rock drill bits from Sweden supplied a substantial share of the market for bits in the early 1950's. Canadian production rose rapidly after 1950 however, and Canadian manufacturers had regained a substantial share of the market for bits by 1956. Demand fell off after 1957 and, in addition, a South African manufacturer made substantial inroads on the Canadian market in 1958.

Despite the strong competitive pressure to which they have been subjected, Canadian manufacturers supply a large proportion of the Canadian market for rock drill bits of the types and sizes which they manufacture. While a great deal of engineering has gone into the modern tungsten carbide rock drill bit, the bits can be manufactured on a small scale with relatively simple equipment. In 1960, nine establishments were reported by the Dominion Bureau of Statistics to be manufacturing rock drill bits. Something of the order of one third of the factory cost of a bit is accounted for by the cost of the tungsten carbide insert, and about one quarter by the cost of the steel forging. Both the tungsten carbide inserts and the steel forgings are available from Canadian manufacturers, or they can be imported at lower rates than those on the bits themselves.

With regard to roller cone bits, an official of Hughes Tool Services Limited, Houston, Texas, said that some types not made in Canada were entered under tariff item 410 1, and he sought a provision for duty-free entry of such bits.

Recommended item VII(a) specifies "Bits and augers of all kinds", duty-free if of a class or kind not made in Canada, and with the same rates as tariff item 410 1 if of a class or kind made in Canada.

Existing Items Ex 410 1, Ex 427(1) and Ex 711

Ex 410 1, Inserts of tungsten carbide to be brazed to rock drills,
Ex 427(1), when imported by manufacturers for use only in their own
Ex 711 factories in the manufacture of hard metal-tipped rock
drills

5 p.c.

7½ p.c.

Tungsten carbide inserts are made of cemented carbides, which consist basically of particles of tungsten carbide cemented together with cobalt. Cemented carbides are characterized by extreme hardness, and they have been used to make tips for industrial cutting tools for many years. The successful development of tungsten carbide rock drill bits during World War II marked a major advance in mining technology. Inserts for rock bits are now the principal use of cemented carbides in Canada.

Tungsten carbide inserts are produced in a number of grades to meet different requirements. Tungsten carbide powders, all of which are imported, constitute between 30 and 40 per cent of the cost of the inserts. The powders are entered free of duty under tariff item 347a.

There are four producers of inserts in Canada, of which Canadian General Electric Company Limited is the largest. The other producers are Firth Sterling (Canada) Limited, Kennametal of Canada Limited and A.C. Wickman Limited.

Apparent Canadian Market for Tungsten Carbide
Rock Bit Inserts for Rock Drills
(\$000)

<u>Year</u>	<u>Canadian Factory Shipments</u>			<u>Imports</u> ^(b)
	<u>Canadian General Electric</u>	<u>Other</u>	<u>Total</u>	
1956	924	(a)	(a)	1,140
1957	1,484	(a)	(a)	1,019
1958	874	(a)	(a)	1,240
1959	626	384	1,010	1,223
1960	406	432	838	1,249
1961	..	..	..	813

(a) Confidential.

(b) S.c. 6258.

In recent years more than half the market has been supplied by imports, mainly from Sweden, South Africa, Ireland and the United States. In addition, imports of rock drill bits have been substantial, having had a value of \$1.4 million in 1960 and \$1.1 million in 1961. A Canadian manufacturer of inserts estimated that the imports of bits in 1960 contained tungsten carbide inserts to the value of around half a million dollars.

Imports of Tungsten Carbide Inserts, by Countries
(\$000)

<u>Year</u>	<u>Sweden</u>	<u>South Africa</u>	<u>Ireland</u>	<u>United States</u>	<u>Total</u>
1956	568	-	-	572	1,140
1957	485	9	-	525	1,019
1958	361	581	-	296	1,240
1959	403	478	-	341	1,223
1960	356	372	-	520	1,249
1961	304	101	262	146	813

Canadian manufacturers of cemented carbides did not complain about imports from the United States. These imports were said to be used by Canadian bit manufacturers who also buy inserts made in Canada, and to consist, at least in part, of grades not made in Canada. Moreover, it was estimated that some \$60,000 or \$70,000 of the imports from the United States in 1960 were destined for other uses than in rock bits. From confidential information received by the Board, it would appear that Canadian manufacturers of cemented carbides can compete in price with imports from the United States.

Complaints were, however, made about imports of inserts from Sweden and the Union of South Africa. These imports are brought in largely by companies making rock bits in Canada who are associated with manufacturers of inserts in Sweden and South Africa. Canadian manufacturers of cemented carbides complained that they had not been able to sell any of their inserts to these companies.

Kennametal of Canada Limited, in a written submission, mentioned the following two companies as importers of inserts from Sweden and South Africa respectively:(1)

"1. Sandvik Canadian Limited of Montreal, ... who have provided facilities in Canada for the production of rock drilling bits, yet who purchase their entire requirements of tungsten carbide inserts from their Swedish company, importing them at the rate of 7½% duty.

"2. Hard Metals of Canada Limited of Noranda, ... who have also provided facilities in Canada for the production of rock drilling bits and who purchase their complete requirements of tungsten carbide inserts from their South African Company at the rate of 5% duty."

(1) Proceedings, September 21, 1961, page 1454.

The imports from Ireland in 1961 are also believed to have been from a company associated with Hard Metals Limited. Corporate relationships rather than price advantage appeared to Canadian manufacturers to explain the imports from Sweden and South Africa. A spokesman for one Canadian manufacturer of inserts stated:(1)

"...so far as we have been able to gather, the price at which inserts are sold in the Canadian market are certainly competitive with any foreign-made inserts."

On the other hand, when a spokesman for Sandvik was asked why his company did not use Canadian inserts, he replied:(2)

"Because we feel we have a superior quality of our own."

The characteristics of inserts produced by different companies vary somewhat, although the Board heard no other evidence that the product of one plant was superior to that of another. A spokesman for Canadian General Electric stated:(3)

"Each manufacturer is very proud of its quality, and of its grades. The industry has not standardized on grades. Each manufacturer has his own chemical compositions, and his own grain size, and his manufacturing process has a very, very great bearing upon the quality of the carbide inserts. This is not a standard product. Two manufacturers starting off with two different powders, Powder A and Powder B, both of the same chemical composition, can come up with ... entirely different products."

At another point, the same spokesman stated:(4)

"...we believe that we are producing products which fully satisfy the quality demands of the Canadian market, and we have heard no evidence to the contrary."

Faced with foreign competition, Canadian manufacturers complained about reductions which had been made in the duties on inserts. Prior to 1951 inserts were entered mainly under tariff item 711 at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. Tariff item Ex 410 1 was established in 1951 with a British preferential rate of 5 p.c. and a most-favoured-nation rate of 10 p.c. In 1956 the present most-favoured-nation rate of 7½ p.c. was established. The spokesman for Canadian General Electric Company Limited pointed out that its sales of Canadian produced rock bit inserts had declined from a peak of \$1,484,000 in 1957 to \$406,000 in 1960. He attributed this decline at least in part to importations under tariff item Ex 410 1.

(1) Proceedings, September 21, 1961, page 1476.

(2) Ibid., September 25, 1961, page 1838.

(3) Ibid., September 21, 1961, pages 1473-4.

(4) Ibid., page 1475.

A spokesman for A.C. Wickman Company Limited stated:(1)

"...it is difficult to visualize what useful purpose has been served by the addition of this item to the Tariff Schedule. It has, to some extent, subsidized one or two foreign manufacturers in the tungsten carbide inserts who had set up plants in Canada specifically to manufacture tungsten carbide rock bits."

Kennametal of Canada Limited wrote:(2)

"These low rates of duty applied to specific 'end use' products effectively combined with well known lower labour rates in the country of origin and eliminate the possibility of Canadian manufacturers participating in the business of supplying the needs of these companies as far as tungsten carbide inserts is concerned."

An official of the South African Embassy in Ottawa wrote to the Board urging that South African interests in the duties on mining equipment, especially tungsten carbide inserts, be taken into account.

Canadian General Electric Company Limited, Kennametal of Canada Limited, and A.C. Wickman Limited all sought higher duties on the tungsten carbide inserts now provided for in tariff item Ex 410 1. Canadian General Electric and Wickman proposed the deletion of tariff item Ex 410 1 (as well as Ex 711 and Ex 427), which would probably mean that the inserts would be classified under tariff item 711 at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. As an alternative, Canadian General Electric proposed that they be considered as parts of rock drills under tariff item 410 1, which carries a preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c.

The Machinery & Equipment Manufacturers' Association of Canada proposed no change in the existing rates. Sandvik Canadian Limited and Atlas Copco Canada Limited both opposed increases in duties on the products now provided for in tariff item Ex 410 1. A spokesman for Atlas Copco stated:(3)

"Atlas Copco Canada Limited, purchase their Tungsten Carbide Tipped Rock Drill Steel from Sandvik Canada Limited, which latter company was incorporated in Canada in 1925 and has about 125 Canadian employees. Any proposal to delete Tariff Item Ex 410 1 would substantially increase Sandvik's manufacturing costs which, in turn, would be a detriment to the Canadian mining industry.

(1) Proceedings, September 21, 1961, page 1451.

(2) Ibid., page 1454.

(3) Ibid., September 22, 1961, page 1763.

"Since an increase in the present tariff on inserts would directly affect the cost of finished drill steels and bits which Atlas Copco Canada Limited purchase from Sandvik Canadian Limited, it follows that Atlas Copco Canada Ltd. is very much concerned regarding the tariff on tungsten carbide inserts exported from Sweden to Canada."

A spokesman for Sandvik pointed out that the company employs about fifty persons in Canada in the manufacture of rock drill steels and bits, and he stated:(1)

"Any increase of duty would have a very serious effect on this company's ability to compete on the Canadian market. It might result in a monopoly to domestic manufacturers and we believe this would ultimately induce higher prices to the Canadian mining industry."

He also informed the Board that tungsten concentrate would soon be manufactured in Canada. He said that Sandvik in Sweden has been negotiating with a Canadian mine for the purchase of tungsten concentrate for export to Sweden to be utilized in the manufacture of tungsten carbide. He pointed out that Sweden sells tungsten carbide in 84 countries.

Recommended item VII(b) specifies "Tungsten carbide inserts for attachment to rock or coal drilling bits". The Board recommends that the existing British preferential rate of 5 p.c. be continued and that the most-favoured-nation rate be increased from 7½ p.c. to 15 p.c.

Existing Item 410m

410m Diamond drills and core drills, not including motive power; electrically operated rotary coal drills; coal cutting machines; all the foregoing for use in mining operations:

(1) Of a class or kind made in Canada; parts thereof

Free	10 p.c.	10 p.c.
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(2) Of a class or kind not made in Canada; parts thereof

Free	Free	Free
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(1) Proceedings, September 25, 1961, page 1833.

Statistics of imports entered under tariff item 410m, by provinces and territories, are shown in the following table:

<u>Province</u>	<u>Imports by Years (dollars)^(a)</u>			
	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
Newfoundland	14,466	15,018	17,608	50,894
Nova Scotia	482,119	305,410	355,919	395,162
New Brunswick	4,357	4,119	716	2,872
Quebec	9,359	4,080	8,957	45,823
Ontario	59,155	66,795	74,712	82,906
Manitoba	154	2,132	268	3,317
Saskatchewan	6,924	9,979	532	424
Alberta	7,536	11,392	113,848	142,784
British Columbia	20,971	27,901	48,498	60,466
Yukon	178	-	-	4,320
Total	605,219	446,826	621,058	788,968

(a) S.c. 5470. Also includes imports under tariff item 410n, which are known to have been small.

Most of the imports have been directed to the provinces where coal mining is carried on, and they have undoubtedly consisted mainly of coal mining machinery.

The Canadian Diamond Drilling Association informed the Board that a full range of diamond drilling equipment was made in Canada. Canadian factory shipments of diamond drills were valued at \$948,000 in 1955, the last year for which statistics were published. Imports are believed to be small, most of them being entered under tariff item 410m(1). A spokesman for the Association stated, however, that some were entered free of duty under tariff items 848 and 848a as well.

Diamond drill bits are made in Canada and the spokesman for the Association said that Canadian manufacturers supplied the major portion of the market. The value of Canadian factory shipments of diamond drill bits have been as follows:

<u>Year</u>	<u>Canadian Factory</u> <u>Shipments</u> <u>(\$000)</u>
1956	5,389
1957	3,914
1958	2,558
1959	4,167
1960	3,598

The spokesman for the Association expressed the belief that most imports of diamond drill bits were not entered under tariff item 410m but rather under other items with higher rates of duty. He attributed the success of Canadian manufacturers of diamond bits to their protection under those other tariff items. After further inquiry

the Board has concluded that, while some diamond bits may be entered under tariff item 446k and even under tariff item 431(b), it is the lower rates carried by tariff items in the mining equipment schedule such as 410d, 410 l, 410m, 848 and 848a which have governed the trade.

One factor which has undoubtedly been of assistance to the Canadian manufacturers is that they can import diamonds free of duty. The cost of diamonds in a typical diamond set bit is equivalent to about four fifths of the selling price of the bit.

The Board was informed that electrically operated rotary coal drills, the type most widely used in coal mines, were not made in Canada although the bits or augers used on them were.

The term "coal cutting machine" has been in the Tariff for many years and it has, from time to time, encompassed a variety of articles for the cutting of coal. For example, there are machines designed for undercutting the coal face preparatory to blasting. In recent years imports of coal cutting machines have consisted of large machines designed to cut coal directly from the face of the mine, thus eliminating the need for drilling and blasting. Most of these machines are imported, although the Dominion Steel and Coal Company has developed and built a variant of its own, the Dosco Miner; the company imports coal cutting machines as well. Coal cutting machines are sometimes used for extracting minerals other than coal.

Proposals - The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410m be deleted and that the following new items be created to encompass most of the goods now entered under tariff item 410m.(1)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Diamond drills and core drills, excluding motive power; parts of the foregoing			
(1) of a class or kind made in Canada	Free	10 p.c.	10 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Diamond drill bits			
(1) of a class or kind made in Canada	Free	10 p.c.	10 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Drill bits containing tungsten carbide	5 p.c.	15 p.c.	25 p.c.
Coal cutting machines; parts of the foregoing			
(1) of a class or kind made in Canada	Free	10 p.c.	10 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

(1) See also the proposals respecting tariff item 410o(i).

The coal industry proposed that tariff item 410m be left unchanged except for the deletion of the words "coal cutting machines" from the item. They proposed the following new item to provide for coal cutting machines:(1)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Coal cutting machines; parts of the foregoing			
of a class or kind made in Canada	Free	10 p.c.	10 p.c.
of a class or kind not made in Canada	Free	Free	Free

The proposal would apparently not affect the rates on coal cutting machines now entered under tariff item 410m, but it would encompass percussion coal cutters which are at present entered under tariff item 410 l.

The Canadian Metal Mining Association and the British Mining Equipment Export Association proposed that tariff item 410m be left unchanged.

The Canadian Diamond Drilling Association made the following proposal regarding the rates on diamond drilling equipment:

"...that all diamond drilling equipment and parts thereof, regardless of end use, should enter Canada under the same tariff conditions as Item 410m, namely, British Preferential, Free; most-favoured-nation, 10%; general 10%. The motive power in every case should have a tariff of 20%."

With regard to diamond set bits, the Association made a number of alternative proposals, all of which were designed to have diamond set bits excluded from tariff item 410m and made dutiable at a British preferential rate of 10 p.c. and a most-favoured-nation rate of 22½ p.c.

Recommendations - Diamond drills, core drills, electrically operated rotary coal drills, and bits and augers of all kinds now entered under tariff item 410m would be covered by recommended item VII(a). Duty-free entry of such goods when of a class or kind not made in Canada would be continued. When of a class or kind made in Canada the British preferential rate would be increased from free to 5 p.c. and the most-favoured-nation rate would be increased from 10 p.c. to 15 p.c.

Coal cutting machines are specified in recommended item VIII(c), with continuing duty-free entry if of a class or kind not made in Canada. If of a class or kind made in Canada, the British preferential rate would be increased from free to 5 p.c., and the most-favoured-nation rate would be increased from 10 p.c. to 15 p.c. The large mining machines which are now classified as coal cutting machines would not, however, be encompassed by recommended item VIII(c); they would be provided for separately in recommended item VIII(b) which specifies "Mining machines for extracting and loading minerals directly from the working face".

(1) See also the proposals respecting tariff item 410o(i).

Existing Item 410n

410n Tubes or shells to be inserted in the coal face for breaking down coal by the release of carbon dioxide or compressed air, and parts thereof

Free

Free

Free

The goods described in this tariff item are patented shells, or discharge tubes, which are inserted into holes in a coal face enabling air or carbon dioxide to be released within the seam, thus dislodging the coal. They form part of a system known as Airdox which was developed by a company in the United States. The system permits more efficient and less hazardous extraction of coal under conditions which are encountered in some coal mines. The use of explosives is avoided, and a higher percentage of the coal obtained is in large lumps.

The coal industry sought to have all the equipment comprising such systems as Airdox made admissible free of duty. The Board was told that the following types of equipment were involved:

1. A six stage air compressor, with electric motor and controls, capable of producing compressed air at pressures up to 10,000 pounds per square inch. It is now classified under tariff item 427a at a most-favoured-nation rate of $7\frac{1}{2}$ p.c.
2. High pressure steel line tubing, about one inch in diameter, tested to 20,000 pounds per square inch, to convey the compressed air from the compressor to the general working areas, and also to act as a receiver for the compressed air. It is now classified under tariff item 446a at a most-favoured-nation rate of $22\frac{1}{2}$ p.c.
3. High pressure flexible copper tubing, tested to 20,000 pounds per square inch, to carry air from the steel line tubing to the shell or discharge tube at the working face. It is now classified under tariff item 348c at a most-favoured-nation rate of 10 p.c.
4. The shells, or discharge tubes, which are now provided for in tariff item 410n.

All the equipment was said to be highly specialized in design and not to be available in Canada.

The coal industry also sought to have another kind of compressor, designed for a different purpose, provided for in tariff item 410n. A spokesman for the industry explained:⁽¹⁾

"A newer type of equipment not now dealt with in the 410 series and not made in Canada is the portable air compressor. Traditionally compressed air plants have been located on the surface

⁽¹⁾ Proceedings, June 20, 1962, pages 1944-5.

and the compressed air has been piped to underground working faces to serve as motive power for machinery. Over the years the coal mines have been greatly extended so that compressed air is now being transmitted through miles of underground piping with consequent transmission losses. Inevitably, mine roadways will continue to grow in length and a solution to the problem of transmission losses is to employ portable, electrically-driven air compressors close to the coal production faces. Some use is also made of such compressors above ground."

Another spokesman for the industry stated:⁽¹⁾

"There is on the market a compressor giving 275 cubic feet a minute at 100 pounds pressure. It is completely portable; it is mounted on wheels and can be readily run from one point to another on a regular mine track...it must bear a certificate of permissability...There is not such a machine made in Canada as far as we know and it is an item of considerable importance to us because there will be quite a number of these machines required."

The coal industry proposed that tariff item 410n be replaced by the following item:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Compressors including lines, fittings, tubes or shells, and motive power for use in underground mining operations, of a type and size not made in Canada; parts of the foregoing	Free	Free	Free

The spokesman for the Machinery & Equipment Manufacturers' Association of Canada opposed the wording of the proposal by the coal industry; he expressed no interest in "lines, fittings, tubes or shells", but was strongly opposed to the words "type" and "size". He proposed that the item might be worded as follows:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Electrically driven track or skid-mounted portable compressors, including motive power, and parts of the foregoing, for use exclusively underground in coal mining operations	Free	Free	Free

The spokesman for the Association indicated that the compressors specified in his proposal were not being made in Canada.

(1) Proceedings, June 20, 1962, pages 1977-8.

Recommended item VIII(b) would continue the provision of duty-free entry for the tubes or shells depicted in tariff item 410n, and it would also provide for pipes, tubes and fittings used in conjunction with the tubes or shells.

Recommended item VIII(c) specifies compressors, duty-free if of a class or kind not made in Canada and a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. if of a class or kind made in Canada.

Existing Item 410o(i)

410o (i) Coal heading machines, electric or magnetic machines for concentrating or separating iron ores, automatic scales for use with conveyors, and parts of all the foregoing, for use exclusively in mining or metallurgical operations

Free Free Free

Imports under this item only averaged about \$25,000 annually during the years 1947 to 1954 inclusive, but they reached a value of \$463,000 in 1957 and were valued at \$284,565 in 1961. The higher level of imports since 1954 has probably been associated with developments in iron ore mining.

The term "coal heading machine", as far as the Board could ascertain, describes certain large machines which were used in coal mines a great many years ago but which are no longer in existence. Proposals respecting tariff item 410o(i) were made which were designed to bring large modern mining machines within its ambit. Such machines are probably classified under tariff item 410m as "coal cutting machines" at present. The Machinery & Equipment Manufacturers' Association of Canada proposed that both tariff items 410m and 410o(i) be replaced in part by the following:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Coal cutting machines; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	10 p.c.	10 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Mining machines, including motive power, for extracting and loading materials directly from solid, of a class or kind not made in Canada; and parts of the foregoing, for use exclusively in mining operations	Free	Free	Free

The coal industry proposed that the words "coal heading machines" be deleted from tariff item 4100(i) and that the following new item be established:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Mining machines for extracting and loading minerals directly from solid, including motive power, for use in mining operations; parts of the foregoing	Free	Free	Free

Recommended item VIII(b) specifies "Mining machines for extracting and loading minerals directly from the working face", duty-free from all countries. Recommended item VIII(c) specifies "Coal cutting machines", duty-free if of a class or kind not made in Canada and with a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. if of a class or kind made in Canada. The Board intends that whatever types of equipment are now entered as coal heading machines under tariff item 4100(i) would fall under recommended item VIII(b) or VIII(c).

Electric or magnetic separators, as provided for in tariff item 4100(i) are not, according to information received by the Board, being made in Canada. Regarding automatic scales as specified in the item, the Board was told that only one kind with limited application was made in Canada. The United States is the principal source of supply of both these types of equipment.

The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 4100(i) and other items be replaced in part by the following:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Machinery, n.o.p., for concentrating or separating ores, metals, or minerals; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

The Canadian Metal Mining Association, the British Mining Equipment Export Association, the Quebec Asbestos Mining Association and the Aluminum Company of Canada Limited all proposed that the words, "or in the beneficiation of non-metalliferous ores" be added at the end of tariff item 4100(i). At the public hearing, a spokesman for the Quebec Asbestos Mining Association also proposed that magnetic machines imported under the item not be restricted to the processing of iron ores.

The spokesman for Aluminum Company of Canada Limited said that its main interest in tariff item 4100(i) was that automatic scales for use with conveyors should continue to be admissible duty-free as at present.

Electric or magnetic machines for concentrating or separating iron ores, as specified in tariff item 4100(i), would be encompassed in recommended item IX(b) which specifies "Separators, including jigs and magnetic or electric separators and magnetic pulleys". Automatic scales for use with conveyors are provided for as "Scales for use with conveyors" in recommended item VIII(c). Both these recommended items provide duty-free entry for goods of a class or kind not made in Canada, a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. for goods of a class or kind made in Canada.

Existing Items 4100(ii) and 4100(iii)

4100 (ii) Chock release apparatus, for use in coal mines to facilitate the safe removal of chocks forming the roof support

Free Free 10 p.c.

4100 (iii) Mine roof and wall supports and support systems, of metal, including yielding props or chocks, but not including roof bolts or washers or nuts therefor, for use underground in mines; parts of the foregoing

Free 12½ p.c. 35 p.c.

The goods provided for in these two items are so closely related that they can conveniently be dealt with together. A spokesman for the coal industry made the following statement with regard to the goods provided for in tariff item 4100(iii):(1)

"Roof supports must now be installed and shifted around with greater speed. This has led to the development, in major coal-producing countries, of various types of metallic, recoverable supports, including friction props, hydraulic props, metallic chock supports, special roof bars and metallic chock releases.

"To date, no Canadian manufacturer has undertaken to make these devices for the limited Canadian market, and the coal industry has had to rely on foreign importations. The bulk of the imports of these items consists of steel props and roof bars, and the industry has conducted large-scale experiments to determine which of the foreign-manufactured types of yielding props (friction or hydraulic props) is more suitable for Canadian coal mining conditions. These tests have indicated that the friction type of steel prop is the more suitable on the grounds of lower initial cost, maintenance cost, and load-bearing characteristics. German firms have specialized in the development and manufacture of friction props and it was German props that were found suitable in the above mentioned tests. United Kingdom firms mainly produce hydraulic props."

(1) Proceedings, June 20, 1962, pages 1943-4.

These support systems are used in the mining of minerals other than coal as well. Regarding the goods provided for in tariff item 4100(ii), an official of a coal mining company stated:⁽¹⁾

"...those chock releases have to do with these steel props which are made in Britain and Germany. They are almost invariably used in long-wall underground mining operations. Long-wall mining is very seldom practised in this country. Dominion Coal do use that system of mining because they mine under the sea...but I don't think anything like it is manufactured in Canada. It is too specialized and the volume would be too small."

Imports under tariff item 4100(ii) reached a peak of \$41,345 in value in 1952; they were only valued at \$482 in 1961. Imports under tariff item 4100(iii) are not recorded separately, but they are known to have been considerably larger than those under tariff item 4100(ii).

The coal industry proposed that tariff item 4100(ii) be left unchanged and that tariff item 4100(iii) be replaced by the following item:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Mine roof and wall supports and support systems, of metal, including yielding props or chocks, but not including roof bolts or washers or nuts therefor, for use underground in mines; parts of the foregoing			
(1) of a class or kind made in Canada	Free	12½ p.c.	35 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

During the public hearing, a spokesman for the coal industry proposed that, as an alternative, tariff item 4100(ii) be deleted and the goods specified under it be provided for in tariff item 4100(iii).

The Canadian Metal Mining Association and the Quebec Asbestos Mining Association made no comments on tariff item 4100(ii) but proposed that there be no change in tariff item 4100(iii). The British Mining Equipment Export Association proposed that there be no change in tariff items 4100(ii) and 4100(iii).

Duty-free entry from all countries is recommended for the goods described in tariff items 4100(ii) and 4100(iii). They would be encompassed in recommended item VIII(b) which specifies:

"Mine roof and wall supports and support systems, of metal, including yielding props, chocks, roof-bars, and chock release apparatus, but not including roof bolts or washers or nuts therefor."

(1) Proceedings, June 21, 1962, pages 2050-1.

The Board considers it unlikely that the limited Canadian market for these goods would warrant their manufacture in this country.

Existing Item 41Op

41Op Sundry articles of metal as follows, for use exclusively in metallurgical operations, namely: furnaces for the smelting of ores; converting apparatus for metallurgical processes in metals; apparatus for chemical conversion, extraction, reduction or recovery, n.o.p.; machinery for the extraction of precious metals by the chlorination or cyanide processes, not including pumps, vacuum pumps or compressors; blast furnace blowing engines for the production of pig iron; parts of the foregoing

Free Free Free

Tariff item 41Op has become the most important of all those providing for mineral processing equipment, at least in terms of the value of imports. Imports under the item have been as follows:

Imports Under Tariff Item 41Op (s.c. 5469)

<u>Year</u>	<u>United Kingdom</u> (\$000)	<u>West Germany</u> (\$000)	<u>United States</u> (\$000)	<u>Total</u> (\$000)
1951	2	-	817	819
1952	*	-	3,237	3,238
1953	198	-	4,418	4,616
1954	7	296	3,417	3,731
1955	168	246	2,566	2,980
1956	409	595	4,084	5,114
1957	3,520	12	6,465	10,119
1958	3,977	481	3,537	8,340
1959	688	673	1,231	2,675
1960	354	390	5,051	6,114
1961	348	474	3,521	4,895

Considerable use is made of the item by the primary iron and steel industry for importations of machinery and equipment for use in what a representative of the industry termed the "open hearth area", that is, in the conversion of iron to steel. In 1960 total imports of machinery and equipment by five steel manufacturers were valued at \$4,866,000; of that total, \$3,173,864 was entered under tariff item 41Op. Some use is made of the item by the gold mining industry which extracts gold by a cyanide process, but imports for this purpose have probably not been large in recent years.

In 1953 the scope of tariff item 41Op was broadened considerably, after representations by Sherritt Gordon Mines Limited, by the addition of the words "apparatus for chemical conversion, extraction, reduction or recovery, n.o.p.". Even before the amendment, some use was made of the item by non-ferrous metal smelters

and refiners for the importation of "furnaces for the smelting of ores; converting apparatus for metallurgical processes in metals". Since the amendment, equipment for substantial parts of the plants used in processing copper, nickel, aluminum, uranium and other minerals have been entered under tariff item 410p as "apparatus for chemical conversion, extraction, reduction or recovery, n.o.p.". Not only equipment specially designed for these uses, but also equipment of general application has been entered under the item, tractors for example. Details of imports under the item in 1959, 1960 and 1961, which are contained in Appendix III, provide a further indication of the range of goods now entered under it. Some of the goods were previously entered under other items in the mining equipment schedule including tariff items 410s, 410t, 410w and 410x; others were formerly dutiable under tariff items of more general application such as tariff item 427(1).

Tariff item 410p received a considerable amount of attention at the public hearing. Manufacturers singled it out for particularly strong criticism. Many of the complaints which were levelled at end-use items by the Machinery & Equipment Manufacturers' Association and other manufacturing interests were directed with particular force at tariff item 410p. On the other hand, as might be expected, most of the beneficiaries of the item strongly urged its retention.

When the spokesman for the Machinery & Equipment Manufacturers' Association of Canada was asked where the machinery manufacturers were most vulnerable, he referred to tariff item 410p in the following terms:(1)

"It is in other items, those of broad coverage... Take 410p. One example, is travelling cranes made in Canada; and travelling cranes come in under 410p... There is one straight case of the discrimination."

And he read into the record a letter from a member company which states in part:(2)

"...you requested our estimate of certain items of mining machinery pertaining to Canadian manufacture vs importations.

Of the equipment listed, namely agitators, classifiers, filters, screens, thickeners and separators, we would estimate that 95 per cent are manufactured in Canada if they come under tariff item 410w.

However, under item 410p, this percentage would drop to 50 per cent. We ourselves lost a very substantial amount of business due to this machinery coming in under 410p during the uranium mill construction period of 1956-1958. To a somewhat lesser extent, this also applies to nickel refining and iron ore reduction which fields are quite active at the present time.

(1) Proceedings, September 18, 1961, pages 1029-30.

(2) Ibid., pages 1042-3.

Tariff item 410p is particularly irksome to us because there is no basic difference between any of this equipment whether it falls under 410w or 410p. In either instance, we are willing and able to supply it with equal facility."

A spokesman for John Inglis Company Limited stated:⁽¹⁾

"Mr. Blair was asking for specific instances where business was lost to Canadian manufacturers. I think it should be answered, and I have two specific instances. We lost an order for \$500,000.00 worth of pressure vessels in 1952, 1953, for a new plant in Saskatchewan. In the first instance, the Department of National Revenue ruled the vessels were not eligible for entry under 410p. The people ordering the equipment went promptly to the Department of National Revenue, and a new clause was added to 410p, and they came in under it subsequently. In 1957, 1958, we know of \$5,000,000.00 worth of vessels and equipment went into the Elliot Lake camp, which were imported..."

On the other hand, an official of Sherritt Gordon Mines Limited, urging the retention of tariff item 410p in its present form, stated that the company had spent nearly \$4 million in pioneering a new process. In ordering equipment for a new plant the company had found that in certain cases Canadian suppliers could meet the specifications required, and such orders were placed with them. In many other instances Canadian manufacturers did not have the experience to build equipment which was required, and the orders were placed abroad. The official expressed the view that the Customs Tariff should not be designed to force those who develop new processes to give potential Canadian suppliers experience in building the necessary equipment. Among the principal things which the company imported under tariff item 410p were pressure vessels, autoclaves, heat exchangers, special types of filters, various reaction vessels, scrubbing units and entrainment separators.

Proposals - The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410p and certain other tariff items be deleted, and that they be replaced in part by a number of new items which are listed in the table beginning on the following page.

Judging from the details of imports under tariff item 410p which are contained in Appendix III, industrial furnaces of various kinds often constitute the largest single type of equipment by value which is entered thereunder. Under the proposals of the Association, these would become dutiable at a British preferential rate of $12\frac{1}{2}$ p.c. and a most-favoured-nation rate of $17\frac{1}{2}$ p.c. if of a class or kind made in Canada; those not of a class or kind made in Canada would continue to be free of duty.

Of the wide variety of other goods now entered under tariff item 410p, some are named in the proposals of the Association and would carry preferential rates of 5 p.c. or $12\frac{1}{2}$ p.c. and most-favoured-nation rates of 15 p.c. or $17\frac{1}{2}$ p.c. if of a class or kind made in

⁽¹⁾ Proceedings, September 19, 1961, page 1148.

Proposals by the Machinery & Equipment Manufacturers'
Association to Replace Tariff Item 410p and Other Items

	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>General Tariff</u>
Metallurgical and metal melting furnaces, electric; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	12½ p.c. Free	17½ p.c. Free	20 p.c. Free
Metallurgical and metal melting furnaces, non-electric; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	12½ p.c. Free	17½ p.c. Free	20 p.c. Free
Agitators, ore processing; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	15 p.c. Free	25 p.c. Free
Classifiers, ore processing; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	15 p.c. Free	25 p.c. Free

Proposals by the Machinery & Equipment Manufacturers' Association to Replace Tariff Item 41Op and Other Items (Cont'd)			
	<u>British Preferential Tariff</u>	<u>Most-Favoured-Nation Tariff</u>	<u>General Tariff</u>
Filters, ore processing; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Flotation machines, ore processing; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Screens, ore and coal processing; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Thickeners, ore processing; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free
Machinery, n.o.p., for concentrating or separating ores, metals, or minerals; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

Canada; if of a class or kind not made in Canada they would continue duty-free. Most of the goods other than furnaces now entered under tariff item 410p are not, however, specifically provided for in the proposals of the Association. They would probably be entered under a variety of existing items including tariff items 427(1) and 446a, both of which carry a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c. Some of the goods, if machinery of a class or kind not made in Canada, would be entered under tariff item 427a which is duty-free under the British preferential tariff and carries a most-favoured-nation rate of $7\frac{1}{2}$ p.c.

A number of spokesmen for the mineral industries expressed strong opposition to the proposal of the Machinery & Equipment Manufacturers' Association. An official of the Aluminum Company of Canada Limited objected that while the proposal would mean free entry for certain specified articles when of a class or kind not made in Canada, other articles of a class or kind not made in Canada would be dutiable either under tariff item 427a or under some other dutiable item.

An official of Sherritt Gordon Mines Limited expressed the view that, in the absence of a phrase such as "for chemical conversion" in the proposals of the Association, his company's operation at Fort Saskatchewan would be excluded from coverage. The company produces concentrates at Lynn Lake which are shipped to Fort Saskatchewan for further processing. He said that his company did use agitators, classifiers, filters, flotation machines, screens, thickeners and other things encompassed in the proposals of the Association, but for chemical conversion rather than for ore processing.

The Industrial Instrument Manufacturers Association proposed that industrial measuring, recording, indicating, and controlling instruments, whether electrical, pneumatic or mechanical, and all automatic control valves, be specifically excluded from tariff item 410p. The Canadian Electrical Manufacturers Association, the Rubber Association of Canada and the Steel Castings Institute of Canada all made proposals which were designed to exclude products of interest to them from the scope of tariff item 410p.

Canadian Metal Mining Association and the Aluminum Company of Canada Limited both proposed that the words "not including pumps, vacuum pumps or compressors" and the term "n.o.p." be deleted from tariff item 410p. In support of the proposal, a spokesman for the Aluminum Company of Canada Limited stated:(1)

"So changed, item 410p becomes what we contend it should be - that is a means to enable metallurgical operations to obtain all machinery and apparatus necessary to their operations at the most competitive prices without excluding one or more classes of goods. Why Canadian pump manufacturers should be treated any differently from our other Canadian suppliers has never been clear to us. This change also puts all classes of extractive metallurgy on the same tariff basis."

(1) Proceedings, September 22, 1961, page 1702.

Sherritt Gordon Mines Limited supported the proposal.

Dominion Magnesium Limited and Eimco Process of Canada Limited asked that tariff item 410p be left unchanged. The British Mining Equipment Export Association proposed the deletion of the words "not including pumps, vacuum pumps, or compressors" from the item.

Recommendations - Recommended items IX(a) and IX(b) would encompass most of the goods now entered under tariff item 410p. The goods encompassed by recommended item IX(a) would continue duty-free, as would those of a class or kind not made in Canada encompassed by recommended item IX(b). Goods of a class or kind made in Canada and falling under recommended item IX(b) would become dutiable at a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c.

Furnaces for the smelting of ores would be encompassed in recommended item IX(b) as "Machinery and apparatus for use in the refining of metals or in roasting or smelting...". Converting apparatus for metallurgical processes are specifically provided for in recommended item IX(b).

Tariff item 410p provides for apparatus for chemical conversion, extraction, reduction or recovery, n.o.p., "for use exclusively in metallurgical operations". Recommended item IX(b) specifies "Apparatus for use in chemical conversion, extraction, reduction or recovery in metallurgical operations". The recommended wording is intended to exclude apparatus which is not used directly in the chemical process. On the other hand, the recommended deletion of the term "n.o.p." would probably attract some goods not at present classified under tariff item 410p.

The words "machinery for the extraction of precious metals by the chlorination or cyanide processes, not including pumps, vacuum pumps or compressors" are repeated without change in recommended item IX(a). The words "blast furnace blowing engines for the production of pig iron" in tariff item 410p are not retained because they are understood to be obsolete. However, blast furnace blowers for use in blast furnaces for smelting iron ore are provided for, duty-free, in recommended item IX(a).

Existing Item 410q

410q Pumps and vacuum pumps, and parts thereof, for use exclusively in the extraction of precious metals by the chlorination or cyanide processes, or in chemical conversion, extraction, reduction or recovery in metallurgical operations

15 p.c.

15 p.c.

20 p.c.

In 1953 the words "or in chemical conversion, extraction, reduction or recovery in metallurgical operations" were added to this item at the same time that they were added to tariff item 410p. This action was followed by a very substantial rise in imports under the item. In the years 1947 to 1952 inclusive, imports averaged about \$6,500 annually. They reached a peak of \$841,564 in 1957 and were valued at \$229,583 in 1961.

With the passage of time rates of duty carried by tariff item 410q have become anomalous in two respects. Pumps of a class or kind not made in Canada may be entered under tariff item 427a free of duty under the Preferential Tariff and at $7\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff. Pumps of a class or kind made in Canada, when imported from countries entitled to the British preferential rate, may be entered under tariff item 427(1) at 10 p.c. There have been no imports whatever from the United Kingdom entered under tariff item 410q for many years.

The Machinery & Equipment Manufacturers' Association of Canada proposed the deletion of tariff item 410q. Bearing in mind their other proposals as well, pumps now entered under tariff item 410q would be entered under tariff item 427(1) at a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c. if of a class or kind made in Canada. Most pumps are of a class or kind made in Canada; those that are not would probably be entered under tariff item 427a which provides duty-free entry under the preferential rate and $7\frac{1}{2}$ p.c. under the most-favoured-nation rate.

The Canadian Metal Mining Association and Aluminum Company of Canada Limited also proposed that tariff item 410q be deleted. If their proposal respecting tariff item 410p were to be implemented as well, the pumps now entered under tariff item 410q would be entered free of duty under tariff item 410p whether or not they were of a class or kind made in Canada.

The Quebec Asbestos Mining Association proposed that the words "or in the beneficiation of non-metalliferous ores" be added to tariff item 410q. The British Mining Equipment Export Association proposed that the duty carried by tariff item 410q under the British preferential tariff be removed and that the words "or in the beneficiation of non-metalliferous ores" be added to the item. Eimco Process of Canada Limited proposed that the item be left unchanged.

The goods now classified under tariff item 410q are provided for in recommended item VIII(c), which specifies pumps and vacuum pumps. The duties on the goods of a class or kind not made in Canada would be removed. On goods of a class or kind made in Canada, the British preferential rate would be reduced to 5 p.c., and the most-favoured-nation rate would remain unchanged at 15 p.c.

Existing Item 41Or

41Or Power driven reciprocating pumps and parts thereof,
designed for normal working heads of 400 feet and over,
for use exclusively underground in mines

15 p.c. 25 p.c. 27½ p.c.

Imports under this item have been negligible for many years and they are no longer recorded separately. The Canadian Metal Mining Association and Mine Equipment Company Limited both informed the Board that pumps of the type described in the item were no longer used underground. The Board was informed, however, that reciprocating pumps were still used in some open pit mining operations.

Tariff item 41Or contains an anomaly in that the goods entered under it are dutiable at higher rates than would otherwise be levied on them. Reciprocating pumps, if of a class or kind made in Canada, would probably be entered under tariff item 427(1) at a British preferential rate of 10 p.c. and a most-favoured-nation rate of 22½ p.c.

The Machinery & Equipment Manufacturers' Association of Canada, the Canadian Metal Mining Association, and Mine Equipment Company Limited all proposed the deletion of this item. The Quebec Asbestos Mining Association proposed that the coverage of the item be extended by deletion of the word "underground", and that the rate under the Most-Favoured-Nation Tariff be reduced to 15 p.c. The coal industry proposed that the item be left unchanged. The British Mine Equipment Export Association proposed that the word "underground" be deleted and that the British preferential rate be free.

The pumps now provided for in tariff item 41Or would be classified as pumps in recommended item VIII(c). If of a class or kind not made in Canada the duties on them would be removed. If of a class or kind made in Canada, the British preferential rate would be reduced to 5 p.c. and the most-favoured-nation rate would be reduced to 15 p.c.

Existing Item 41Os

41Os Amalgam safes, automatic ore samplers, automatic feeders, retorts, mercury pumps, non-metallic heating elements, pyrometers, bullion furnaces, amalgam cleaners, and parts of all the foregoing, for use in mining or metallurgical operations

Free Free Free

Imports under this item have averaged about \$600,000 annually, mainly from the United States. They were valued at \$544,775 in 1961.

An amalgam safe appears to be nothing more than an ordinary safe in which precious metals in certain forms are kept. Automatic ore samplers are devices designed to remove samples from streams or flows of ore; they consist generally of travelling carriages with

slotted containers which travel at right angles to the ore stream at pre-determined intervals. Automatic feeders are devices for feeding ore to a process at a controlled rate; generally this is accomplished by pans which have a fixed vibration applied to them, thereby moving the ore forward at a fixed rate, or by a fixed or variable rate conveyor belt which controls the rate of feed. Retorts are cast iron or steel containers, generally lined with refractory brick; they are used to melt or heat various substances in the refining and treatment of ores or metals. Mercury pumps are pumps used in certain metal refining processes to produce an extremely high vacuum. These pumps are not made in Canada, and all are imported from the United States. Non-metallic heating elements, the Board was told, are heating elements enclosed in a ceramic or plastic case to withstand immersion in corrosive solutions. They are not manufactured in Canada, and are imported generally from the United States. Pyrometers are instruments used to determine the temperature of a substance by optical means. Usually they are hand instruments operated by a battery. Bullion furnaces are small metal melting furnaces which are used in the refining of gold and silver. Amalgam cleaners are used to separate gold from mercury where recovery of free gold from ore is accomplished by the method of adding mercury or an amalgam to the ore. The equipment consists of a heating chamber where the gold amalgam is heated and a water-cooled condenser which condenses the mercury vapour after it is driven off from the gold amalgam.

The Board was informed that much of the equipment named in tariff item 410s was made in Canada, the principal exceptions being mercury pumps, non-metallic heating elements and most pyrometers.

The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410s be deleted. Under the proposals of the Association most of the goods named in tariff item 410s would be classified under existing items of more general application. Bullion furnaces, however, would be classified under an item which the Association proposed for metallurgical and metal melting furnaces, with a British preferential rate of $12\frac{1}{2}$ p.c. and a most-favoured-nation rate of $17\frac{1}{2}$ p.c. if of a class or kind made in Canada, and duty-free if not of a class or kind made in Canada.

The Industrial Instrument Manufacturers Association proposed that pyrometers be excluded from tariff item 410s.

The Canadian Metal Mining Association, the Aluminum Company of Canada Limited, the Quebec Asbestos Mining Association and the British Mining Equipment Export Association all proposed that the words "or in the beneficiation of non-metalliferous ores" be added to the item. Dominion Magnesium Limited asked that the item be left unchanged.

Recommended item IX(a) specifies mercury pumps and non-metallic heating elements, with continuing duty-free entry from all countries recommended. Recommended item IX(b) specifies automatic ore samplers, retorts, pyrometers and amalgam cleaners; these goods would continue duty-free if of a class or kind not made in Canada but

they would be subject to a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. if of a class or kind made in Canada. Automatic feeders would be classified as "Feeders, mechanical". Bullion furnaces would be encompassed by the following provision in recommended item IX(b):

"Machinery and apparatus for use in the refining of metals or in roasting or smelting or the production of anodes, cathodes, blocks, slabs, pigs or ingots in such processes"

No special provision for amalgam safes is recommended; they are ordinary safes and would be classified under tariff item 461(1) which carries a British preferential rate of 10 p.c. and a most-favoured-nation rate of 20 p.c.

Existing Item 410t

410t Blowers, of iron or steel, for use in the smelting of ores, or in reduction, separation or refining of metals, ores or minerals; furnaces, rotary kilns and revolving roasters, of metal, for use in the roasting of ore, mineral, rock or clay; furnace slag trucks and slag pots:

(1) Of a class or kind made in Canada; parts thereof

12½ p.c. 17½ p.c. 20 p.c.

(2) Of a class or kind not made in Canada; parts thereof

Free Free Free

Imports under this item have averaged about \$600,000 annually over the past five years. They reached a peak of \$1,528,368 in 1957, of which \$1,238,815 was dutiable. They were valued at \$366,720 in 1961, of which \$271,296 was dutiable. At least some varieties of all the equipment specified in the item are made in Canada. Over the years well over half the goods by value entered under the item have been dutiable, which indicates that they have been of a class or kind made in Canada.

Blowers are essentially fans which are used to create low pressure air. They are used in conjunction with industrial furnaces, for pressurizing control rooms to eliminate dust, and in a variety of other industrial applications. Furnace slag trucks are specially built to withstand heat in moving hot slag away from metallurgical furnaces. Slag pots are used either to transport molten slag or to store it while cooling.

Some of the goods provided for in tariff item 410t are related to some of those provided for in tariff items 410g, 410p, 410x and other items in this Reference. For example, whereas equipment for beneficiating iron ore by sintering or nodulizing may be entered under tariff item 410g, roasting equipment for the beneficiation of iron ores

by other processes may be entered under tariff item 410t. Blowers may be entered under tariff item 410t to be attached to furnaces entered under tariff item 410p for the "smelting of ores". On the other hand, equipment otherwise provided for under tariff item 410t may be entered under tariff item 410p if for "chemical conversion, extraction, reduction or recovery, n.o.p.". Some of the equipment of a class or kind not made in Canada which is entered free of duty under tariff item 410t would otherwise be eligible for entry free of duty under tariff item 410x.

The Machinery & Equipment Manufacturers' Association of Canada proposed the following item in place of tariff item 410t:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Blowers for use in the smelting of ores, or in reduction, separation or refining of metals, ores or minerals, parts of the foregoing			
(1) of a class or kind made in Canada	12½ p.c.	17½ p.c.	20 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

In addition, the proposals respecting furnaces which the Association made with regard to tariff item 410p and other tariff items would probably provide for some or all of the furnaces, rotary kilns and revolving roasters now entered under tariff item 410t, with no change in rates of duty. There would be no special provision for slag trucks or slag pots; these would probably be classified under tariff item 427(1) or 427a, depending on whether or not they were of a class or kind made in Canada.

The Canadian Metal Mining Association, the coal industry and the British Mining Equipment Export Association proposed that tariff item 410t be left unchanged.

Recommended item IX(b) would encompass all the goods now provided for in tariff item 410t. Duty-free entry for the goods of a class or kind not made in Canada would be continued. On goods of a class or kind made in Canada, the British preferential rate would be reduced to 5 p.c. and the most-favoured-nation rate would be reduced to 15 p.c. Blowers of iron or steel, furnace slag trucks and slag pots are specified in the item. Furnaces, rotary kilns and revolving roasters, while not specified, would be classified under the following part of recommended item IX(b):

"Machinery and apparatus for use in the refining of metals or in roasting or smelting or the production of anodes, cathodes, blocks, slabs, pigs or ingots in such processes"

Existing Item 410v

410v Buddles, vanners, slime or concentrating tables and parts thereof, for use in mining and metallurgical operations

Free

Free

Free

Imports under this item were valued at less than \$50,000 annually for many years until 1959; they were valued at \$1,499,031 in 1959, at \$634,767 in 1960 and at \$2,925,393 in 1961. In recent years a type of equipment known as Humphrey spirals has come into extensive use in the beneficiation of iron ores. This equipment apparently meets the general definition of a buddle, and it has been entered under tariff item 410v. This undoubtedly explains the recent rise in the value of imports under the item.

Most mining experts who attended the public hearing had never heard of buddles or vanners, although the opinion was expressed that these machines had first been used in the Cornish tin mining industry. According to the Handbook of Ore Dressing(1) the term buddle is limited by some to machines of the variety called building buddles, but it gives the following more general definition of a buddle:

"...all machines for the concentration of fine sands and slimes in which concentration is affected by flowing a stream of pulp in a relatively thin layer over a substantially smooth, slightly-inclined surface."

The Handbook defines vanners as follows:(2)

"Vanners are concentrating machines adapted to the treatment of fine sands. They consist essentially of an endless belt with upper surface horizontal transversely and inclined longitudinally, all carried on a frame that oscillates in the plane of the belt."

Slime or concentrating tables are in current use and they are produced in Canada by Dorr-Oliver-Long Limited. A representative of Eimco Process of Canada Limited described concentrating tables as follows:(3)

"It is a gravity separating device with a vibratory motion; this motion tends to move the mineral in one direction, and the combination of the flow of water and the motion separates the heavy and the light fractions and effects the concentration of the fractions."

(1) Arthur F. Taggart, Handbook of Ore Dressing, New York, 1927, pages 653-4.

(2) Ibid., page 763.

(3) Proceedings, September 22, 1961, pages 1607-8.

The Machinery & Equipment Manufacturers' Association proposed the deletion of tariff item 410v and the creation of the following item:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Machinery, n.o.p., for concentrating or separating ores, metals, or minerals; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

The Canadian Metal Mining Association, the Quebec Asbestos Mining Association and the British Mining Equipment Association all proposed that the words "or in the beneficiation of non-metalliferous ores" be added to tariff item 410v. The coal industry proposed that the item be left unchanged.

While buddles and vanners as such are not at present used in Canada, mining interests wanted provision for them retained in case they might be used in the future.

Slime or concentrating tables are specified in recommended item IX(b); they would remain duty-free if of a class or kind not made in Canada but would carry a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. if of a class or kind made in Canada. No special provision for buddles or vanners is recommended. It is possible, however, that goods now classified as buddles would be classified as "separators" or "classifiers", which are named in recommended item IX(b).

Existing Item 410w

410w Machinery, n.o.p., for use in the concentration or separation of ores, metals or minerals, namely: Flotation machines, flotation cells, oil feeders and reagent feeders for flotation machines and flotation cells, pumps, vibrating and impact screens, jigs, filters, magnetic separators and magnetic pulleys; parts of all the foregoing

5 p.c. 7½ p.c. 20 p.c.

Imports entered under this item, mainly from the United States, have averaged about \$1.4 million annually over the past five years; they were valued at \$1,385,427 in 1961.

The flotation process, developed during the first quarter of the present century, is now widely used in the concentration of ores. A flotation machine consists basically of a flotation cell, or tank, containing water and certain additives, into which finely ground ore is fed. Air is introduced into the bottom of the cell

and mineral particles rise to the surface with the air bubbles, forming a froth which is skimmed off, leaving the gangue behind. Flotation machines are made in Canada, although there are particular makes and designs which are imported from the United States.

Oil feeders and reagent feeders for flotation machines were described by the Canadian Metal Mining Association as follows:

"Oil or reagent feeders for flotation machines are used to accurately, continuously add small quantities of flotation oils or flotation reagents to the process. In the flotation process it is of utmost importance that measured, constant quantities of these reagents are added at all times. The quantities required are generally very small, hence special equipment has to be made for this purpose.

"These feeders generally consist of discs, mounted vertically, to which are attached movable cups, and the discs and cups rotate through a container partially filled with the reagent or oil. The cups are filled with the reagent or oil, and then moved to a point where they are dumped so they can flow through a pipe to the flotation machine."

The Board was informed that certain types of these feeders were made in Canada and other types were imported from the United States.

A wide variety of pumps is made in Canada; in 1959 Canadian factory shipments of pumps and parts, other than household water pumping systems, were valued at about \$18 million. In the same year, imports recorded separately as pumps were valued at about \$12 million; the total value of imports of pumps was undoubtedly considerably higher. One manufacturer of pumps, in reply to an inquiry, wrote with reference to the Canadian market for pumps of all kinds:

"We believe that, in general, about 50% of the Canadian market is supplied by imports. About 90% of the imports are from the U.S.A. and 10% from the U.K. The percentage coming from the U.K. is increasing...

"...The prices of imported pumps where duty is not applicable are about 10% to 20% below Canadian prices. Quality is not a problem."

Another manufacturer wrote the following comments about the market for pumps used in mining:

"General Service Pumps" - (water supply, mine dewatering, boiler feed, chemical process pumps). There are a number of Canadian manufacturers who can fill these needs...

"...Some British competition ... in multistage mine dewatering and American competition in vertical deepwell multistage turbine types..."

"...A number of pumps come into Canada from the U.S. as an integral part of other equipment but cannot say how many or what dollar value."

In addition, the Board was told that some substantial orders for solids handling pumps had been placed in the United States in recent years.

Screens are used extensively in concentrating ores when particles must be classified by size. Vibrating screens are described in the Encyclopaedia Britannica⁽¹⁾ as plane surfaces of woven wire cloth which are rapidly vibrated by mechanical or electrical means. The term "impact screen", as far as the Board could ascertain, is no longer used; although several inquiries were made, no information as to the meaning of the term was uncovered. Most of the screening equipment used by the mineral industries is produced in Canada. One Canadian manufacturer wrote in response to a letter from the Board:

"...we have manufactured Screening Equipment,...both the electrical type and the mechanical type in all sizes and models. In this field we are capable of meeting all the requirements of the Mining Industry. We are just one of the number of Canadian manufacturers serving the industry and it may be safe to say that at least 90% of the market is 'Made in Canada'."

Jigs were said by the Canadian Metal Mining Association to depend upon the principle of differences in specific gravity for the separation of ore particles. The Association provided the Board with the following description of jigs:

"In the case of jigs this separation is accomplished by a pulsating upward current of water into which the ore is placed. The lighter material will be carried upwards with the water, whereas the heavier material will settle through the water and is collected at the bottom of the container. Jigs are generally used in cases where the difference in specific gravity is very large. An example of this is the separation of galena (lead) sulphide, which has a specific gravity of about 7.5, and quartz, which has a specific gravity of 2.7."

Jigs are manufactured in Canada.

Filters of many varieties are used in ore dressing processes. One type commonly used is the vacuum filter. It often consists of a large rotating cylinder covered with a porous fabric through which the liquid is drawn; the solids become caked on the fabric and are then removed. A wide range of filters used by the mineral industries is produced in Canada, and Canadian manufacturers are believed to supply a large proportion of the Canadian market. Canadian factory shipments were valued at \$708,000 in 1955, the last year for which such statistics have been published. When a spokesman for Eimco Process of Canada

(1) Encyclopaedia Britannica, Chicago, 1962, Volume 16, page 883.

Limited was asked if he knew of any classes, types or kinds of filters which were not made in Canada, he replied:(1)

"The tilted pan filter, the Eimco belt filter, which is the belt type of machine, the Burwell filter press, which is a platform type filter in which the filter and the accessories are mounted on a common base. That is about it."

Magnetic separators and magnetic pulleys are machines of various kinds which are used to separate materials containing iron from non-magnetic materials. They are frequently used in the concentration of iron ores. They are also used to remove "tramp" iron from other types of ores before they are fed into a crusher; this is done to prevent damage to the crushing machinery. As far as the Board could ascertain, magnetic pulleys and magnetic separators are not made in Canada.

Proposals - The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410w be deleted, and that it, along with other items, be replaced by the items which are shown in the table on the following page.

With the exception of pumps, the items proposed by the Association would appear to provide for all or most of the goods now entered under tariff item 410w. Since most of these goods, with the exception of magnetic separators and magnetic pulleys, would probably be deemed to be of a class or kind made in Canada, the British preferential rates carried by them would not be greatly changed; the most-favoured-nation rates on most of them would rise from $7\frac{1}{2}$ p.c. to 15 p.c. Most of the pumps now entered under tariff item 410w would probably be entered under tariff item 427(1) at a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c.

The Canadian Metal Mining Association proposed that the phrase "vacuum pumps" be inserted after the word "pumps" in tariff item 410w. It and the British Mining Equipment Export Association proposed that classifiers, thickeners, specific gravity separators, heavy media separators and dust-tube dust collectors be added to the item.

The Quebec Asbestos Mining Association proposed that specific gravity separators and dust-tube dust collectors be included under tariff item 410w. The Aluminum Company of Canada made the following proposal which would broaden tariff item 410w considerably:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Machinery, n.o.p., for use in the concentration or separation of ores, metals or minerals; parts of all the foregoing	5 p.c.	$7\frac{1}{2}$ p.c.	20 p.c.

(1) Proceedings, September 22, 1961, page 1600.

Proposals of the Machinery & Equipment Manufacturers'
Association Respecting Tariff Item 410w

	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>General Tariff</u>
Filters, ore processing, parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c. Free	15 p.c. Free	25 p.c. Free
(2) of a class or kind not made in Canada			
Flotation machines, ore processing; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c. Free	15 p.c. Free	25 p.c. Free
(2) of a class or kind not made in Canada			
Screens, ore and coal processing; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c. Free	15 p.c. Free	25 p.c. Free
(2) of a class or kind not made in Canada			
Machinery, n.o.p., for concentrating or separating ores, metals, or minerals; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c. Free	15 p.c. Free	25 p.c. Free
(2) of a class or kind not made in Canada			

Mine Equipment Company Limited sought the inclusion of dust collectors in the mining equipment schedule. The coal industry and Eimco Process of Canada Limited proposed that tariff item 410w be left unchanged.

Recommendations - Recommended item IX(b) would encompass all the equipment named in tariff item 410w. With the exception of impact screens, it is all specifically described in the recommended item although there are a few changes in wording; if imported, impact screens would be classified under the recommended item as "screens". The Board recommends that the duties on the equipment, if of a class or kind not made in Canada, be removed. On goods of a class or kind made in Canada, the British preferential rate of 5 p.c. would be retained and the most-favoured-nation rate of $7\frac{1}{2}$ p.c. would be increased to 15 p.c. In addition, recommended item IX(b) would provide for separators, thickeners, classifiers and vacuum pumps, all of which the mineral industries sought to have brought under tariff item 410w. Dust collectors are named in recommended item VIII(c) which would provide for the same rates of duty as those in recommended item IX(b).

Existing Item 410x

410x Machinery, furnaces and appliances, of a class or kind not made in Canada, and parts thereof, for use in the refining of metals, and for the production of anodes, cathodes, blocks, slabs, pigs or ingots, in such refining processes

Free Free Free

Imports under this item have averaged about \$500,000 annually over the past five years; they were valued at \$629,138 in 1961. The provisions of the item appear to overlap those of tariff item 410p and 410t(2) to some extent, but all three items provide for duty-free entry. While tariff item 410x is quite wide in coverage, the term "refining of metals" in the item is fairly restrictive; for example machinery for the extraction of metals from ores is excluded.

The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410x along with other items be deleted and replaced by the following items:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Metallurgical and Metal-Melting Furnaces, Electric; parts of the foregoing			
(1) of a class or kind made in Canada	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	20 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Metallurgical and Metal-Melting Furnaces, Non-Electric; parts of the foregoing			
(1) of a class or kind made in Canada	12½ p.c.	17½ p.c.	20 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

Goods not specifically provided for in the items proposed by the Association would be entered under other tariff items of more general application, such as tariff items 427a which provides for duty-free entry under the British preferential tariff and a most-favoured-nation rate of 7½ p.c., and tariff item 446a which provides a British preferential rate of 10 p.c. and a most-favoured-nation rate of 22½ p.c.

A spokesman for the Aluminum Company of Canada Limited objected to these proposals because they made no provision for casting machines in aluminum refining plants, which have been entered under existing tariff item 410x. The spokesman for the Machinery & Equipment Manufacturers' Association of Canada replied:⁽¹⁾

"There again, Mr. Chairman, that is fundamentally our objection; the broad terms of these items, 'machinery' and 'appliances'."

The Aluminum Company of Canada Limited and the British Mining Equipment Export Association proposed the deletion of the words "of a class or kind not made in Canada" from tariff item 410x.

The Canadian Metal Mining Association, the coal industry and Eimco Process Canada Limited proposed that tariff item 410x be left unchanged.

Recommended item IX(b) would encompass the goods now entered under tariff item 410x, with continuing duty-free entry. The relevant part of the recommended item is as follows:

Machinery and apparatus for use in the refining of metals or in roasting or smelting or the production of anodes, cathodes, blocks, slabs, pigs or ingots in such processes

(i) ...

(ii) of a class or kind not made in Canada

Free

Free

Free

(1) Proceedings, September 18, 1961, page 1074.

In addition, the Board is recommending that goods of the same description, if of a class or kind made in Canada, be made dutiable at a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c.

Existing Item 410y

410y Heavy duty mine hoists, of a size and capacity not made in Canada

Free

Free

10 p.c.

The Board was informed that virtually all types of hoists used in Canadian mines are deemed to be of a class or kind made in Canada; consequently, very little use would appear to have been made of tariff item 410y in recent years. Most of the equipment comprising mine hoists are probably entered under tariff item 427(1) at a British preferential rate of 10 p.c. and a most-favoured-nation rate of 22½ p.c.

The Machinery & Equipment Manufacturers' Association of Canada proposed the deletion of tariff item 410y, whereas the Canadian Metal Mining Association, the Quebec Asbestos Mining Association, the coal industry and the British Mining Equipment Export Association proposed its retention.

Recommended item VIII(a) specifies "Mine hoists" without qualification as to class or kind, with rates of British preferential 5 p.c. and most-favoured-nation 15 p.c.

Existing Item 410z

410z Machinery and apparatus, n.o.p., and parts thereof, for the recovery of solid or liquid particles from flue or other waste gases at metallurgical or industrial plants, not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel

5 p.c.

10 p.c.

12½ p.c.

Imports under this item, largely from the United States, have averaged about \$560,000 annually over the past five years; they were valued at \$508,304 in 1961. A manufacturer provided the Board with the following description of some of the equipment which might be entered under tariff item 410z:

"So far as we are aware, there are two categories of equipment for recovering solid or liquid particles from flue or other waste gases:

"a). A simple pneumatic-gravity system which would slow down the travel of particle bearing gases in a container and allow the particles to settle to the bottom while the gases escaped

from above. The components of this equipment would consist basically of sheet metal ducts, fans, sheet or light metal container and valves. The apparatus is basically simple and could generally be made by a sheet metal fabricator.

"b). Electrostatic precipitators. With this form of equipment, the gases pass between plates or bars electrostatically charged, thereby attracting and holding solid or liquid particles from the gas. Again the mechanical parts of this machinery are not at all complex or of difficult design and could well be made by a small metal working shop and assembled at the place of installation."

The Board was also informed of other types of dust collecting equipment. There are cyclone type dust collectors, and there are scrubbers. Scrubbers collect dust by spraying water into the gases bearing the dust. A wide range of dust collecting equipment is made in Canada.

The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 410z be deleted and replaced by the following item:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Machinery and apparatus, n.o.p., for the recovery of solid or liquid particles from flue or other waste gases; parts of the foregoing			
(1) of a class or kind made in Canada	5 p.c.	15 p.c.	25 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

The Canadian Metal Mining Association and Aluminum Company of Canada Limited proposed that the most-favoured-nation rate carried by tariff item 410z be reduced from 10 p.c. to 7½ p.c. A spokesman for the Aluminum Company of Canada Limited indicated that his company's proposal to reduce the most-favoured-nation rate was to remove an anomaly respecting articles of a class or kind not made in Canada which might be entered under the item. Many such articles, when imported for other purposes, are now dutiable at 7½ p.c. under tariff item 427a.

The coal industry, the British Mining Equipment Export Association and Eimco Process of Canada Limited proposed that the item be left unchanged.

American Standard Products (Canada) Limited sought the deletion of tariff item 410z as being one of the items under which dust collectors were permitted "discriminatory entry".

Recommended item XII would replace tariff item 410z without any change in coverage except for the removal of the words "not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel". The term "n.o.p."

would also be removed, but this is not intended to change the scope of the item. The duties on the goods, if of a class or kind not made in Canada, would be removed. On goods of a class or kind made in Canada, the British preferential rate would remain at 5 p.c. and the most-favoured-nation rate would be increased from 10 p.c. to 15 p.c.

Existing Item 442d

442d Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported for use in the manufacture of goods entitled to entry under tariff items 410a(iii), 410g, 410 l, 410m, 410o, 410p, 410q, 410s, 410t, 410v, 410w, 410x, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k and 447a, under such regulations as the Minister may prescribe

Free Free 10 p.c.

No statistics of imports entered under tariff item 442d are available, but the item is known to be an active one. Its provisions are very similar to those of drawback item 1056.

A spokesman for Sicard Incorporated stated that tariff item 442d, as it related to tariff item 410a(iii), was "of some interest" to the company and he did not propose any changes in the item. He stated that, as the item is administered,

"...the Minister must be convinced that the importer is first a manufacturer of off-highway trucks and secondly, that the finished truck would contain 30% of Canadian part content."

The Canadian Metal Mining Association proposed that the reference to tariff item 410q be deleted from the item. The Quebec Asbestos Mining Association and Eimco Process of Canada Limited proposed that the item be left unchanged.

The Board is recommending the deletion from tariff item 442d of reference to tariff items 410a(iii), 410g, 410 l, 410m, 410o, 410p, 410q, 410s, 410t, 410v, 410w, 410x and 410z. No alternative provision for materials is recommended - see note on existing item 1059.

Existing Item 848

See note on existing item 399a.

Existing Item 848a

848a Machinery and apparatus and parts thereof (including motive power) of a class or kind not made in Canada and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

Free

Free

Free

The provisions of tariff item 848a were introduced in 1954 as a part of tariff item 848; at that time, Canada's deposits of potash in Saskatchewan and rock salt in Ontario were in the early stages of a period of rapid development.

The recommendations of the Board respecting well drilling equipment and drilling mud which may now be entered under this item are contained in the first volume of this Report. Other types of equipment entered under the item for use in connection with potash and rock salt are discussed below.

Potash, Including Muriate of Potash

Potash is defined in the Encyclopaedia Britannica as follows:(1)

"Potash, the crude potassium carbonate [K_2CO_3] obtained by lixiviating wood ashes and evaporating the solution to dryness, an operation at one time carried out in iron pots - hence the name from 'pot' and 'ash'. The term 'potash' or 'caustic potash' is frequently used for potassium hydroxide. In fertilizer terminology, potassium oxide (K_2O) is called potash."

In commercial usage the word potash has also been applied to other potassium salts. The deposits in Saskatchewan, which are among the largest yet discovered, are of sylvite. Sylvite contains potassium chloride, otherwise known as muriate of potash, or simply as potash. As a fertilizer the product is rated according to the degree of its equivalence to potassium oxide (K_2O) although it does not actually contain any K_2O . Potassium chloride is rated at 63.3 per cent K_2O , and it is the most valuable of the various potashes.

The development of the Saskatchewan potash deposits presented very serious technical difficulties which delayed production for a number of years. The principal difficulty has been described in the following terms by the Department of Mines and Technical Surveys:(2)

"The solubility of both potash and the associated salt is the basis of many of the problems of potash mining. Shafts sunk to potash deposits must have water-tight walls to prevent

(1) Encyclopaedia Britannica, Volume 18, Chicago, 1962, page 321.

(2) Potash, 1960 Review, Department of Mines and Technical Surveys, 1961, pages 6 and 7.

surface or underground water from reaching the potash. Water leaks, if not controlled and eliminated at once, often result in the loss of both shaft and underground workings...

... In Saskatchewan, shaft-sinking through water-bearing formations has been difficult and costly. Because the wet Blairmore formation is more than 200 feet thick and is about 1,200 feet underground, it contains large amounts of water under high pressure. For several reasons the simpler methods of dealing with the water problem have not been effective. On the other hand, the shafts sunk into the formation, together with their cast-iron tubing or special concrete construction, are expensive and difficult to construct, and only time and experience will make known their comparative costs and merits."

Attempts to exploit the Saskatchewan deposits have been under way since 1951. Various methods of sinking mine shafts have been employed and, in addition, brining methods through drill holes have been tested.

Despite the difficulties, one company, International Minerals and Chemical Corporation, began mining on a large scale through a shaft in 1962. The Potash Company of America, which produced some potash in 1958, is expected to resume production in 1963. In addition there are a number of other companies with mining and brining projects at various stages of development. Production may reach one million tons in 1964 and far more in succeeding years. Potash is at present valued at about \$28.00 per ton, and the industry in Saskatchewan is rapidly assuming the proportions of one of Canada's larger mineral industries.

Proposals - The Machinery & Equipment Manufacturers' Association of Canada proposed that tariff item 848a be re-worded as follows:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Machinery and apparatus and parts thereof (including motive power) and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines, or, for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt			
(1) of a class or kind made in Canada	5 p.c.	10 p.c.	20 p.c.
(2) of a class or kind not made in Canada	Free	Free	Free

The Potash Company of America and the Saskatchewan Chamber of Mines proposed that tariff item 848a be revised as follows:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Machinery and apparatus and parts thereof (including motive power) and materials, for use in the exploration, discovery, development, and operation of potash and rock salt mines, or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt	Free	Free	Free

In support of the proposal, a spokesman for the company stated:(1)

"The proposed rewording of Tariff Item 848a, and more particularly the 'class or kind' deletion, can provide further incentive and encouragement. The specialized nature of the industry and the difficulties encountered to date indicate the need for both technological skills and plant from sources throughout the world. Any operator in Canada would, as a matter of good business and good public relations, buy Canadian products in so far as practicable; but all possible burdens should be lifted from this highly competitive operation, whether such burden be the actual payment of a customs duty or the need to carry on constant negotiations as to the dutiable character of a purchase when there is no clearly defined exemption set forth in the act. Materials and equipments have been developed for this specialized industry throughout the world through an almost continuous program of experimentation and research."

The Saskatchewan Chamber of Mines, in a written submission, supported any encouragement which could be offered for further development of potash production as contributing substantially to the Canadian economy.

Imperial Oil Limited proposed that tariff item 848a be revised by deleting the word "mines" and substituting therefor the word "deposits". The company indicated that it was experimenting with the use of a brining method for the recovery of potash from the earth, and it was concerned that its importations of equipment might not qualify under the existing wording of tariff item 848a.

Travis Mud and Chemicals Limited, Calgary, made representations to the effect that tariff item 848a should remain unchanged in so far as it encompasses drilling mud and equipment. The subject of drilling mud is discussed on page 45 in Volume 1 of this Report.

(1) Proceedings, June 21, 1962, page 2104.

Rock Salt

The Encyclopaedia Britannica defines rock salt as follows: (1)

"Rock salt is a crystalline halite (sodium chloride) occurring in the form of rock masses and beds."

And it defines salt as follows: (2)

"In chemistry the term salt is applied generically to any compound formed by substituting the hydrogen of an acid by a metal or a group of elements acting as a metal. Common salt, or, simply, salt, is the name given to the varied natural and industrial forms of sodium chloride."

Refined table salt can be produced from mined rock salt. In Canada, however, most of the supply of table salt is extracted from rock salt deposits by brining methods. The mined rock salt is used principally for industrial purposes.

Canadian production of salt has more than tripled since 1954, as the following table shows.

<u>Production of Salt</u> (000 tons)				
<u>Year</u>	<u>Mined Rock Salt</u>	<u>Other Dry Salt</u>	<u>Salt Content of Brines</u>	<u>Total Production</u>
1953	83	438	453	973
1954	81	432	450	963
1955	275	449	529	1,254
1956	639	452	508	1,599
1957	791	436	544	1,772
1958	780	449	1,132	2,361
1959	1,245	481	1,591	3,317
1960	1,321	447	1,544	3,311
1961	1,349	418	1,480	3,247

Source: Dominion Bureau of Statistics.

Factors which have contributed to the rapid increase in production of salt are described by the Department of Mines and Technical Surveys as follows: (3)

" The rapid expansion of the Canadian salt industry is attributed to two factors - the opening of a rock-salt mine at Ojibway, Ontario, by the Canadian Rock Salt Company Limited in 1955, and the initiation of a program of brine

(1) Encyclopaedia Britannica, Volume 19, Chicago, 1962, page 898.

(2) Ibid., page 896.

(3) Canadian Mineral Industry, (Preliminary), Department of Mines, 1960, Ottawa.

export by Canadian Brine Company at Sandwich, Ontario, in 1958. A further increase in salt production can be expected in 1960 as Canada's two new rock-salt mines, one at Pugwash, Nova Scotia, the other at Goderich, Ontario, enter their first full year of production."

As one result of these developments, Canada's exports of salt, mainly as brine and rock salt, exceed imports by several millions of dollars annually, whereas the reverse was formerly the case.

Proposals - The proposal by the Machinery & Equipment Manufacturers' Association of Canada respecting tariff item 848a is cited in the first part of this sub-section dealing with potash.

The Canadian Rock Salt Company Limited proposed the retention of tariff item 848a in its present form. In support of the proposal, an official of the company stated in a written submission:(1)

"(1) The present wording of Customs Tariff Item No. 848(a) works no hardship on any existent Canadian manufacturing industry, since under the terms of the item there must be no Canadian source of the equipment and/or supplies to which the said Tariff Item is applicable.

(2) The present wording of Customs Tariff Item No. 848(a) constitutes a direct incentive to Canadian industry to produce in Canada the equipment and/or supplies to which the said item is applicable, with the sure knowledge that such action will render the said item inapplicable...

(3) The change which has developed in the status of the Canadian Rock Salt industry in international trade within the last half of the decade 1950-1960 entitles the industry to a good measure of consideration from the Tariff Board."

Dow Chemical of Canada Limited, a user of salt brine, pointed out that tariff item 848a provided preferential treatment for operators of rock salt mines but not for producers of salt brine. While not asking for the retention of tariff item 848a, it sought an end to the differences in treatment accorded producers of salt in different forms. In a written submission, the company stated:(2)

" Although we are opposed in principle to end-use items, if they are to be continued, it is our belief and recommendation that this item be enlarged to cover salt in all its forms not restricted to certain forms.

We would respectfully suggest therefore that if this item is to be retained that it read as follows: 'Machinery and apparatus and parts thereof (including motive power) of a class or kind not made in Canada and drilling mud,

(1) Proceedings, June 21, 1962, pages 2127-8.

(2) Ibid., page 2130-1.

for use in the exploration, discovery, development of potash, rock salt mines and salt brine wells or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt, or salt brine'.

If such wording is used, we believe it would serve to eliminate the discrimination which now exists between producers of salt and/or salt brine. We are not asking for the retention of the item but merely correction of the present inconsistency."

Recommendations - As mentioned earlier, the recommendations of the Board respecting drilling rigs and drilling mud now entered under tariff item 848a are contained in Volume 1 of this Report, particularly in recommended items I and III.

All other drills, and bits of all kinds, now provided for under tariff item 848a, when used in mining or quarrying, would be covered by recommended item VII(a). Those now classified under tariff item 848a would continue to be free of duty.

The rest of the machinery and apparatus imported under tariff item 848a is largely mining equipment. The Board is not recommending an item for mining equipment used in these particular end uses. Such equipment would fall under recommended items VIII or IX which cover machinery and apparatus used in mining and quarrying and in the treatment of ores, metals and minerals. These items would provide continued duty-free entry for such equipment now falling under tariff item 848a.

Existing Item 848b

848b Materials for use in the manufacture of the goods specified in tariff items 848 and 848a

Free

Free

Free

The Board is recommending deletion of this item; see note on existing item 1059.

Existing Item 1056

<u>Goods</u>	<u>When Subject to Drawback</u>	<u>Portion of Duty (Not including special duty or dumping duty) Pay- able as Drawback</u>
Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada	When used in the manufacture of goods entitled to entry under tariff items 410a(iii), 410g, 410 l, 410m, 410o, 410p, 410q, 410s, 410t, 410v, 410w, 410x, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k and 447a.....	99 p.c.

Drawbacks paid under this item in respect of materials used in the manufacture of goods entitled to entry under tariff items included in the present Reference have been as follows:

<u>Tariff Item</u>	<u>1957-8</u> (<u>\$</u>)	<u>1958-9</u> (<u>\$</u>)	<u>1959-60</u> (<u>\$</u>)	<u>1960-61</u> (<u>\$</u>)
410a(iii)	68	-	-	-
410g	-	-	-	-
410l	-	-	262	-
410m	-	-	-	-
410o	-	-	-	-
410p	20,173	30,829	3,738	14,279
410q	-	-	-	-
410s	-	-	-	-
410t	-	-	-	-
410v	-	-	-	-
410w	-	410	361	-
410x	-	-	-	-
410z	8,386	-	-	2,784

The provisions of this item are similar to those of tariff item 442d.

Sicard Incorporated asked that the provision for tariff item 410a(iii) in the item be removed for the following reasons:(1)

" The first one being based on our general request of the abrogation of tariff item 410a(iii) and the second reason is based on possible change in the administrative interpretation. Presently the drawback item is read as if the 30% Canadian requirement invoked in the administration of item 442d was present in that item.

In future, other views might prevail as nowhere in this drawback item can this restriction of content be read. If such restriction were lifted off, all parts having the privilege of importation under 410a(iii) might enjoy a drawback of 99% provided of course the importer is a manufacturer and that the part is 'not made in Canada'."

The Canadian Metal Mining Association proposed that the reference to tariff item 410q be deleted from the item.

The Quebec Asbestos Mining Association and Eimco Process of Canada Limited proposed that the item be left unchanged.

The Board is recommending the deletion of item 1056 in so far as it applies to tariff items 410a(iii), 410g, 410 l, 410m, 410o, 410p, 410q, 410s, 410t, 410v, 410w, 410x and 410z - see note on existing item 1059.

(1) Proceedings, September 20, 1961, page 1412.

Existing Item 1058

<u>Goods</u>	<u>When Subject to Drawback</u>	<u>Portion of Duty (Not including special duty or dumping duty) Pay- able as Drawback</u>
Materials.	When used in the manufacture of articles entitled to entry under tariff items 411 and 411a, not including saws, and articles entitled to entry under tariff item 410 1, when such articles are used as specified in said items.....	60 p.c.

Drawbacks paid under this item in respect of materials used in the manufacture of goods entitled to entry under tariff item 410 1 have been as follows:

<u>Fiscal Year</u>	<u>Drawback Paid (\$)</u>
1957-8	6,176
1958-9	8,596
1959-60	916
1960-1	4,327

The Quebec Asbestos Mining Association proposed that the item be left unchanged.

The Board is recommending the deletion of item 1058 in so far as it applies to tariff item 410 1 - see note on existing item 1059.

Existing Item 1059

<u>Goods</u>	<u>When Subject to Drawback</u>	<u>Portion of Duty (Not including special duty or dumping duty) Pay- able as Drawback</u>
Materials.	When used in the manufacture of articles entitled to entry under tariff items 410b and 410z when such articles are used as specified in said items.....	70 p.c.

Drawbacks paid under this item have been as follows:

<u>Tariff Item</u>	<u>1957-8</u> (<u>\$</u>)	<u>1958-9</u> (<u>\$</u>)	<u>1959-60</u> (<u>\$</u>)	<u>1960-61</u> (<u>\$</u>)
410b	6,704	4,800	2,360	9,729
410z	3,234	-	-	-

Eimco Process of Canada Limited proposed that the item be left unchanged.

The Board is recommending the deletion of item 1059.

The Board has recommended the deletion of tariff item 848b and deletion of reference to the materials used in the manufacture of the goods enumerated in the tariff items within the scope of this reference in tariff item 442d, and drawback items 1047, 1056, 1058 and 1059.

It would seem that little use has been made of these provisions for the entry of such materials and moreover the Board has recommended duties of 5 p.c. British Preferential Tariff and 15 p.c. Most-Favoured-Nation Tariff on the goods manufactured from these materials when such goods are ruled to be of a class or kind made in Canada. In these circumstances the Board does not consider that special provision is warranted for such materials. If in specific cases it appears that some such relief is necessary the Board would recommend that consideration be given to the introduction of a temporary tariff item under the provisions of Section 273 of the Customs Act.

SUMMARY AND CONCLUSIONS

Much of the machinery and equipment used in the mineral industries and the petroleum and natural gas industry falls within the scope of Reference 130. In the first volume of this Report the Board dealt with drilling rigs and other articles used in exploration for petroleum, natural gas, potash and rock salt, and with equipment used in producing oil and natural gas from wells. Volume 2 deals with the remainder of this Reference. It covers principally machinery and equipment used in the mining and processing of minerals, including all bits and drills other than oilfield drilling rigs.

While the operations and also the equipment covered in Volume 1 are distinct from those covered in Volume 2, there are a few instances of processes or equipment which find a place in both volumes. Pumps, valves, motors and belting are used both in oilfield equipment and mining operations, and are the subject of recommendations in both volumes depending on their use. Also, both the oilfield drilling equipment dealt with in Volume 1 and the mining equipment dealt with in Volume 2 may be used in connection with potash and rock salt deposits.

Otherwise, the separation of the Report into two volumes is a natural one, both in terms of the users of the equipment involved and of the suppliers. Apart from some articles of general application, the oilfield equipment covered in Volume 1 is of a unique and highly specialized character. Moreover, the petroleum and natural gas industry, having made tremendous strides since 1947, has only recently gained the stature of a leading industry in Canada. For these and other reasons, the production of oilfield equipment in Canada is confined to a relatively small range of items made by light manufacturing firms located in the west.

The mineral industries, on the other hand, have been long established and through the years have fostered production, mainly in Ontario and Quebec, of a broad range of machinery and equipment which they require. They now draw upon such secondary manufacturing industries as the industrial machinery industry, the electrical apparatus industry, the rubber industry and others for most of their requirements of specialized equipment as well as of goods of more general application. In approaching the question of what tariffs are appropriate for the goods included in this part of the Reference, the Board is conscious of these differences between the petroleum and natural gas industry and its suppliers on the one hand, and between the mineral industries and their suppliers on the other hand.

Between 1950 and 1962, Canada's production of metallic and non-metallic minerals, excluding petroleum and natural gas, increased from \$822 million to \$1,764 million. Production of coal declined from \$110 million to \$69 million during that period, and gold production from \$169 million to \$155 million, but these declines were

far more than offset by increases in production of iron ore, copper, nickel, asbestos, and uranium. In addition, production of structural materials - clay products, cement, lime, sand, gravel, and stone - rose from \$132 million in 1950 to \$350 million in 1962, an increase of 165 per cent. Exports of minerals apart from petroleum and natural gas now amount to about \$1.5 billion annually, having more than doubled in value since 1950. Altogether, the mineral industries as a group have experienced steady and substantial growth during the post war period. Moreover, new projects under way, such as the development at Pine Point and the exploitation of the potash deposits in Saskatchewan, provide assurance that growth will continue in the foreseeable future.

The mineral industries have thus provided a very substantial market for equipment manufactured by a wide range of Canadian enterprises. An estimate prepared by the Board indicates that the total value of purchases of machinery and equipment of all kinds by the mineral industries is of the order of \$200 million annually; although not all of this machinery and equipment is covered by the present Reference, a considerable portion of it is. It has also been estimated by the Board that some four-fifths by value of the purchases of machinery and equipment by the mineral industries in 1959 and 1960 were made in Canada; of the remainder, which was imported, most was entered under tariff items included in this part of the Reference.

In general the tariff items included in this Reference provide for lower rates of duty on goods when used for mining or refining purposes than would apply if the same goods were entered for other uses. The mining equipment schedule in some instances allows free entry for articles that are made in Canada and in other instances provides for various rates of duty lower than those in the main machinery tariff item 427(1); this latter item carries rates of 10 p.c. British preferential, 22½ p.c. most-favoured-nation and 35 p.c. general. There is generally not a great difference between the rates for machinery not made in Canada when for use in mining and when for other uses. Tariff item 427a, for example, provides for machinery of a class or kind not made in Canada at duty rates of free British preferential, 7½ p.c. most-favoured-nation and 35 p.c. general.

The principal broad issue in this volume of the Report is whether the Board should recommend continuation of lower rates of duty on imports of machinery and equipment when used by the mineral industries than when used by others. At the public hearing, manufacturers of equipment affected by the mining equipment schedule sought the end of preferential end-use rates, while the mineral industries argued for their retention.

The conflict of interests in this regard was particularly marked when tariff items such as 410f, 410g, and 410p which encompass goods of general application were under discussion. Tariff item 410p, for example, provides duty-free entry for an almost unlimited range of goods as long as they are to be put to specified broad classes of uses by the mineral industries. Conflicts of interest were somewhat less marked with respect to tariff items such as 410 l, 410m and 410w; these items, while containing end-use restrictions, bear various rates of duty and provide only for highly specialized equipment used mainly

or entirely by the mineral industries. Attention was focused more upon what would be appropriate rates of duty on the articles named in such tariff items. Little or no clash of interest was evident with respect to goods entered under end-use tariff items restricted by the phrase "of a class or kind not made in Canada", such as 410a(i), 410a(ii), 410k and 410x.

Some manufacturing interests argued that the entire mining equipment schedule should be deleted, allowing the goods now classified under it to fall under tariff items of more general application such as 427(1), 446a and 427a. This would, in general, mean sharply increased rates of duty on machinery and equipment imported by the mineral industries; as a second choice, some proposed that products of particular interest to them be specifically excluded from any end-use tariff items.

The Machinery & Equipment Manufacturers' Association of Canada, however, whose members have perhaps a larger interest in the mining equipment schedule than any other group of equipment manufacturers represented at the public hearing, adopted a somewhat different stand. The Association did strongly oppose tariff items such as 410p which provide duty-free entry for an unspecified range of goods, and proposed their deletion. It then proposed the creation of tariff items with no end-use restrictions which would provide for a reduced, but still substantial, range of equipment used by the mineral industries. The proposal envisaged that most such equipment would be dutiable at British preferential rates of 5 p.c. or $12\frac{1}{2}$ p.c. and most-favoured-nation rates of 15 p.c. or $17\frac{1}{2}$ p.c., if of a class or kind made in Canada, and would otherwise be free of duty. While the implementation of the proposals of the Machinery & Equipment Manufacturers' Association would mean higher average duties on equipment used by the mineral industries, the increase would not be nearly as great as if the mining equipment schedule were abolished altogether.

Representatives of the mineral industries proposed that the end-use tariff items in the mining equipment schedule be retained and extended and that some of the rates of duty be reduced. For instance, the Canadian Metal Mining Association, the Quebec Asbestos Mining Association, and the Aluminum Company of Canada Limited proposed that some of the items be broadened to include the "beneficiation of non-metalliferous ores". Discrimination in the Tariff as between equipment used in processing various types of ores would thereby be removed; asbestos was cited as one type of mineral product which was discriminated against in existing mining equipment schedule. In support of the retention and extension of the mining equipment schedule, representatives of the mineral industries pointed to the fact that their industries must compete for business on world markets. They also pointed to the contribution made by the mineral industries to the Canadian economy as a whole, and particularly to the very large market for Canadian machinery and equipment which they provided.

The issue of end-use relates mainly to those goods which Canadian suppliers can make. Except for some objections on grounds of general principles and administrative difficulties, there was

general agreement at the public hearing that machinery and equipment of a class or kind not made in Canada might well be permitted duty-free entry when for use by the mineral industries. In the Board's view there is little advantage in taxing imported goods not likely to be made in Canada, and the offsetting advantages of providing duty-free entry of such goods for the mineral industries are significant. The Board accordingly accepts in this context the principle that goods not made in Canada and not likely to be made in Canada in the near future should as far as practicable be allowed duty-free entry.

With respect to machinery and equipment of a kind made in Canada the Board considers that some account can be taken of the interests of both the equipment manufacturers and of the mineral industries. Indeed, at the public hearing spokesmen for the mineral industries indicated repeatedly that they considered Canadian manufacturers of machinery and equipment were entitled to some measure of protection. But they also said, and with this the Board agrees, there was a need for exercising care to avoid the imposition of any unwarranted burdens of cost on the mineral industries, particularly in view of the fact that a great proportion of mineral production is sold in export markets.

The Machinery & Equipment Manufacturers' Association of Canada did indicate that a British preferential rate of 5 p.c. or 12½ p.c. and a most-favoured-nation rate of 15 p.c. or 17½ p.c. would offer sufficient protection for a range of specified equipment used in large quantities by the mineral industries. In the Board's view, however, the range of equipment which the Association would include is too restricted, so that much of the equipment for use by the mineral industries would become subject to the higher rates of duty under tariff items of general application such as item 427(1). In the Board's view, such rates would be unnecessarily high for the types of equipment considered in this Reference. Also, the proposal would discriminate between those standard mining and mineral processing operations using largely the named articles and those using mainly other equipment.

The mineral industries, as already stated, provide a very large market for machinery and equipment. Moreover many of their requirements are specialized, thereby reducing the competitive disadvantages which Canadian manufacturers of other products encounter when attempting to compete against mass-produced goods from other countries. For these and other reasons, the Canadian equipment manufacturers, despite the relatively low rates of duty prevailing on machinery and equipment used by the mineral industries, have in fact been able to retain a very large share of this market.

Another factor which, in the view of the Board, should be taken into account is the span of time during which equipment for the mineral industries has been accorded special treatment. With the passage of time manufacturers tend to become adjusted to whatever levels of protection exist. Some of the items in the mining equipment

schedule can be traced back to 1897; there have of course been many changes since that time, although there has been no general revision since 1930. The Board considers that experience shows that while Canadian producers of mining equipment require some protection they do not require the degree of protection now prevailing on machinery and equipment generally.

For several reasons, therefore, the Board considers that there should continue to be special provision in the Tariff for much of the machinery and equipment of a kind made in Canada used by the mineral industries, with rates of duty lower than would apply if the mining equipment schedule were simply deleted.

An examination of existing rates in the mining equipment schedule reveals a wide variation of rates applied to goods of a kind made in Canada. The British preferential rates range from free to 15 p.c. and the most-favoured-nation rates from free to 25 p.c. Moreover, similar types of equipment may in some instances be entered at different rates of duty. For example, pumps may be entered at most-favoured-nation rates of $7\frac{1}{2}$ p.c. under tariff item 410w and 15 p.c. under tariff item 410q. Likewise, drills are subjected to different rates of duty if imported under tariff item 410 l or 410m(1). In making its recommendations, the Board has been guided by the experience of the Canadian manufacturers operating under these various rates.

In its recommendations the Board has adopted the principle that, in the absence of special circumstances, there should be a uniform set of rates for the machinery and equipment in the mining equipment schedule. Specifically, the Board considers that, for machinery and equipment of a class or kind made in Canada, a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. are appropriate. It is of the opinion that the rates recommended would not add unduly to the costs of the mineral industries, specially in view of the extensive provisions recommended for free entry of goods not made in Canada and free entry for certain other classes of goods. These rates, in the view of the Board, should be sufficient to permit and encourage efficient manufacture in Canada of most types of machinery and equipment required by the mineral industries. They are also more equitable than the present rates since they would subject a wide range of goods for mining purposes to identical rates, eliminating the preferential treatment for certain classes of mines and refineries as against other classes. Moreover, while end-use provisions would not be eliminated, the discrepancy between the rate applied to machinery for other uses and the average rate of duty applied to machinery of a kind made in Canada for mining and refining would be reduced.

All the foregoing considerations have guided the Board in arriving at the general framework of its recommendations. The provision for duty-free entry of goods of a class or kind not made in Canada has been considerably extended, partly by the naming of goods known not to be made in Canada and partly by the introduction of class or kind provisions.

The technique employed in the existing mining equipment schedule of naming particular types of machinery and equipment for mining and the early stages of processing, such as crushing and concentrating, has been continued, and the list of named goods has been extended. Some articles not likely to be made in Canada would be entered duty-free, while others which are made in Canada would become dutiable at a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. However, many named articles would be made subject to class or kind provisions since certain designs, sizes or capacities, for example, may not be made in Canada.

Machinery and equipment used in the later stages of mineral processing are so diverse that the Board has not considered it practicable to construct a schedule of named articles. Consequently, the Board has continued, with modifications, certain existing provisions in the mining equipment schedule which provide for an unspecified range of goods when for use in the later stages of processing. Recognizing as well founded the objections of the equipment manufacturers to such items, the Board in most cases recommends that they be made subject to class or kind provisions, wherein those goods of a class or kind made in Canada would become dutiable at uniform rates of 5 p.c. British preferential and 15 p.c. most-favoured-nation.

In formulating its Recommended Schedule, the Board has found that in some instances departures from the general pattern of rates were justified. As one exception to the general pattern of its recommendations the Board is recommending that certain machinery and equipment of particular interest to the iron and steel industry be made free of duty whether or not of a class or kind made in Canada. The Board is conscious of the need to maintain low prices of steel in order to keep costs of the numerous Canadian users of steel as low as possible. The steel industry has a built-in incentive to purchase from its customers where possible, and so the basic steel producers may be expected to buy equipment in Canada where it is available. Another exception relates to off-highway trucks, for which the Board has recommended a most-favoured-nation rate of 10 p.c. rather than 15 p.c. which it has usually recommended for goods which are made in Canada. The recommended rate of 10 p.c. would represent an increase from the present most-favoured-nation rate of $7\frac{1}{2}$ p.c. on off-highway trucks for the uses specified. In reaching this decision the Board was mindful of the high proportion of imported parts which are incorporated into off-highway trucks made in Canada, and of the duty-free entry into Canada of many of these parts. Another exception is with respect to tungsten carbide inserts; these are made in Canada and consequently it is recommended that they be dutiable without any class or kind provision. The Board also recommends the continuation of free entry for a range of safety equipment, with some possible extension of scope arising from changes in wording.

The scope of the Recommended Schedule differs in a number of ways from that of the existing mining equipment schedule, the net effect amounting to some enlargement. For example, the end-use provisions as expressed in the preambles to some of the recommended items have been broadened to eliminate discrimination as between different kinds of mining or mineral processing. On the other hand, the Board's recommendations are intended to result in some narrowing of the end-use provisions in existing tariff item 410p.

Extension of the list of named articles which is recommended also broadens the scope of the schedule. For example, loading machines of a class or kind not made in Canada are now covered by the mining equipment schedule; the Board is recommending that those of a class or kind made in Canada be brought within the schedule as well. While pumps for many uses within the mineral industries now fall within the mining equipment schedule, the Board is recommending that pumps for all such uses be included. Although compressors are not now specified in the mining equipment schedule some may well be entered under it. The mineral industries provide a substantial market for compressors, and the Board considers that this type of equipment should be specifically provided for in the Recommended Schedule. Heavy duty mine hoists of a size and capacity not made in Canada are now specified in the mining equipment schedule; the Board is recommending that all mine hoists be included. Certain other types of articles widely used by the mineral industries would also be brought into the schedule.

In this volume of the Report the Board is recommending seven new tariff items to replace 23 existing ones. In addition, the deletion of two drawback items is recommended, and two other drawback items and one tariff item relating to materials would be amended so as to delete reference to tariff items which would themselves disappear. Terminology has been brought up to date, and similar articles scattered among unrelated articles in different tariff items are drawn together. In most cases, parts are included in the same items as the whole article, and are accorded the same rates of duty.

Each of the recommended items covers some distinct part of the mining or mineral processing field. Recommended item VII relates to drills, including water well drilling rigs, bits, augers and tungsten carbide inserts. Most of the machinery and equipment listed in recommended item VIII are used in mining and the earlier stages of mineral processing, while those listed in recommended item IX relate mainly to the later stages. Recommended item X provides for diesel-powered off-highway trucks; recommended item XI provides for equipment for producing coal gas and coke; recommended item XII provides for equipment used in the recovery of particles from flue or other waste gases; and recommended item XIII provides for safety equipment.

RECOMMENDED SCHEDULE

Note: This schedule is complementary to that in volume 1 which contains Recommended items I to VI.

1. That Schedule A to the Customs Tariff be amended by striking out tariff items 410a, 410b, 410c, 410f, 410g, 410h, 410i, 410j, 410k, 410 l, Ex. 410 l, 410m, 410n, 410o, 410p, 410q, 410r, 410s, 410t, 410v, 410w, 410x, 410y, 410z, 442d, and the enumerations of goods and the rates of duty set opposite each of these items, and by striking out the following extract from tariff items 427(1) and 711:

	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>
Inserts of tungsten carbide to be brazed to rock drills, when imported by manufacturers for use only in their own factories in the manufacture of hard metal-tipped rock drills	5 p.c.	7½ p.c.

and that Schedule A be further amended by inserting the following items, enumerations of goods and rates of duty:

<u>Tariff Item</u>	<u>Goods Subject to Duty and Free Goods</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>General Tariff</u>
VII	(a) Bits and augers of all kinds; Drills of all kinds, not including those drilling rigs entitled to entry under tariff items I (c) and I (d); All the foregoing for use in drilling for water, oil, natural gas or minerals, or directly in mining or quarrying:			
	(i) Of a class or kind made in Canada; parts thereof.....	5 p.c.	15 p.c.	25 p.c.
	(ii) Of a class or kind not made in Canada; parts thereof....	Free	Free	Free

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
VII	(b) Tungsten carbide inserts for attachment to rock or coal drilling bits.....	5 p.c.	15 p.c.	25 p.c.
VIII	Machinery and apparatus for use in mining, quarrying, the development of mineral deposits, or the processing of ores, metals or minerals, namely: (a) Crushing and grinding machines; Mine hoists; Parts of all the foregoing...	5 p.c.	15 p.c.	25 p.c.
	(b) Mine roof and wall supports and support systems, of metal, including yielding props, chocks, roof-bars, and chock release apparatus, but not including roof bolts or washers or nuts therefor; Mining machines for extracting and loading minerals directly from the working face; Trucks, tractors, or shuttle cars, self-propelled, for use exclusively underground; Tubes or shells to be inserted in the face for breaking down coal or other minerals by the release of carbon dioxide or compressed air; pipes, tubes and fittings for use therewith; Parts of all the foregoing; Conveyors, of a class or kind not made in Canada; Parts, of a class or kind not made in Canada, for conveyors...	Free	Free	Free
	(c) Air engines; Coal cutting machines; Dust collectors; Elevating platforms, including raise climbers, for use under- ground; Flame-proof enclosed driving motors;			

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
VIII(c) (cont'd)	<p>Loading machines, including draglines and power shovels; Machinery and apparatus, including the hulls of dredges, floating or shore discharge pipeline or booster station equipment, to be incorporated into dredging plants; Pumps, vacuum pumps, and compressors; Scales for use with conveyors:</p> <p>(i) Of a class or kind made in Canada; parts thereof.....</p> <p>(ii) Of a class or kind not made in Canada; parts thereof.....</p>	<p>5 p.c.</p> <p>Free</p>	<p>15 p.c.</p> <p>Free</p>	<p>25 p.c.</p> <p>Free</p>
IX	<p>Machinery and apparatus for use in the processing, smelting or refining of ores, metals or minerals, namely:</p> <p>(a) Machinery and apparatus for sintering or pelleting iron ore, concentrated or not, or flue dust; Machinery and apparatus for use in the construction, equipment and repairs of blast furnaces for smelting iron ore, such machinery and apparatus to include blast furnace blowers, hot blast stoves and burners, blast piping and valves connecting the blowers with the furnace, scale cars, charging and hoisting apparatus, blast furnace gas piping, cleaners and washers; Machinery and apparatus, of a class or kind not made in Canada, for use exclusively in handling materials to be charged into a blast furnace</p>			

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
IX(a) (cont'd)	<p>or an electric smelting furnace, from the dock, car or stock pile, at the smelting works;</p> <p>Machinery for the extraction of precious metals by the chlorination or cyanide processes, not including pumps, vacuum pumps, or compressors;</p> <p>Mercury pumps;</p> <p>Non-metallic heating elements;</p> <p>Parts of all the foregoing...</p>	Free	Free	Free
	<p>(b) Agitators;</p> <p>Amalgam cleaners;</p> <p>Automatic ore samplers;</p> <p>Blowers, of iron or steel;</p> <p>Classifiers;</p> <p>Converting apparatus for metallurgical processes;</p> <p>Feeders, mechanical;</p> <p>Filters;</p> <p>Flotation machines, flotation cells, and oil feeders and reagent feeders therefor;</p> <p>Furnace slag trucks and slag pots;</p> <p>Pyrometers;</p> <p>Retorts;</p> <p>Screens, including oscillating, revolving, shaking, stationary, travelling and vibrating screens, and grizzlies;</p> <p>Separators, including jigs and magnetic or electric separators and magnetic pulleys;</p> <p>Slime or concentrating tables;</p> <p>Thickeners;</p> <p>Apparatus for use in chemical conversion, extraction, reduction or recovery in metallurgical operations;</p>			

Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
IX(b) (cont'd)	Machinery and apparatus for use in the refining of metals or in roasting or smelting or the production of anodes, cathodes, blocks, slabs, pigs or ingots in such processes; Machinery and apparatus for use in washing, screening, drying or dry cleaning coal:			
	(i) Of a class or kind made in Canada; parts thereof..	5 p.c.	15 p.c.	25 p.c.
	(ii) Of a class or kind not made in Canada; parts thereof.....	Free	Free	Free
X	Diesel-powered self-propelled dump trucks, mounted on rubber-tired wheels or on rubber-tired wheels and half-tracks, having a rated capacity by struck volume of not less than $9\frac{1}{2}$ cubic yards, and by payload weight of not less than 15 tons, and complete parts thereof, for off-highway use in carrying minerals or other excavated materials at mines, quarries, gravel and sand pits or at construction sites	5 p.c.	10 p.c.	25 p.c.
XI	Machinery and apparatus for use in producing coal gas and coke; machinery and apparatus for use in the distillation or recovery of products from coal tar or coal gas:			
	(i) Of a class or kind made in Canada; parts thereof.....	5 p.c.	15 p.c.	25 p.c.
	(ii) Of a class or kind not made in Canada; parts thereof.....	Free	Free	Free

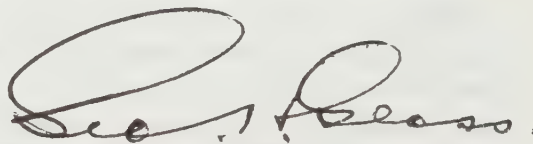
Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
XII	Machinery and apparatus for the recovery of solid or liquid particles from flue or other waste gases at metallurgical or industrial plants:			
	(i) Of a class or kind made in Canada; parts thereof...	5 p.c.	15 p.c.	25 p.c.
	(ii) Of a class or kind not made in Canada; parts thereof.....	Free	Free	Free
XIII	(a) Equipment for distributing stone dust in mines; Rescue appliances, designed for use in mines, where artificial breathing is necessary in the presence of noxious gases, including oxygen pumps for use exclusively in connection with such appliances; Automatic resuscitation apparatus for artificial breathing to aid in the saving of human life; Apparatus for determining the presence or quantity of carbon monoxide in the blood; Inhalators for treating victims of noxious gas; Portable respirators, including hose mask outfits complete with face piece, harness, air line and air pump or blower, designed for use in noxious atmosphere; Indicating or continuous recording equipment or automatic alarm equipment for detecting or indicating noxious gases or noxious vapours in the atmosphere; Parts of all the foregoing...	Free	Free	Free
	(b) Safety goggles designed for eye protection of workers employed in hazardous work; parts thereof.....	Free	Free	Free

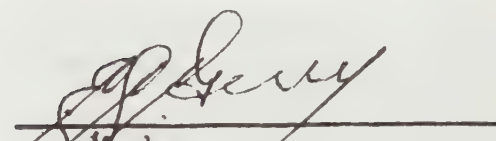
Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
XIII	(c) Miners' safety lamps; miners' acetylene lamps; accessories for cleaning, filling, charging, opening and testing miners' lamps; Battery renewal preparations for miners' electric safety lamps; All for use exclusively at mines; Parts of the foregoing.....	Free	Free	Free
442d	Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported for use in the manufacture of goods entitled to entry under tariff items 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k and 447a, under such regulations as the Minister may prescribe...	Free	Free	10 p.c.

2. That in order to take account of the replacement of tariff item 410a(iii) by recommended item X, consequential changes should be made wherever item 410a(iii) is referred to in the Customs Tariff; for example, in the following tariff items: 438a, 438b, 438c, 438d, 438e.
3. That in order to take account of the replacement of certain tariff items by several recommended items, consequential changes should be made in Schedule III to the Excise Tax Act; for example, in the following tariff items which are referred to in that Schedule: 410b, 848, 848a, 848b.
4. That Schedule B to the Customs Tariff be amended by striking out items 1056 and 1058, and the enumeration of goods and the rate of drawback of duty set opposite those items, and by inserting therein the following items, enumerations of goods and rates of drawback of duty:

Item No.	Goods	When Subject to Drawback	Portion of Duty (Not including Special Duty or Dumping Duty) Payable as Drawback
1056	Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada.	When used in the manufacture of goods entitled to entry under tariff items 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k, and 447a.....	99 p.c.
1058	Materials.	When used in the manufacture of articles entitled to entry under tariff items 411 and 411a, not including saws, when such articles are used as specified in said items.....	60 p.c.

5. That Schedule B to the Customs Tariff be amended by striking out item 1059, and the enumeration of goods and the rate of drawback of duty set opposite that item.


 First Vice-Chairman


 Member

Ottawa, June 28, 1963.

NOTES ON RECOMMENDED ITEMS

relating to mining equipment

Recommended Item VII

VII

- (a) Bits and augers of all kinds;
 Drills of all kinds, not including those drilling
 rigs entitled to entry under tariff item I (c)
 and I (d);
 All the foregoing for use in drilling for water,
 oil, natural gas or minerals, or directly in mining
 or quarrying:
 (i) Of a class or kind made in Canada; parts thereof

5 p.c. 15 p.c. 25 p.c.

- (ii) Of a class or kind not made in Canada; parts thereof

Free Free Free

- (b) Tungsten carbide inserts for attachment to rock or
 coal drilling bits

5 p.c. 15 p.c. 25 p.c.

Recommended item VII(a) is intended to provide for all kinds of drills for use in drilling for water, oil, natural gas or minerals, with the exception of the drilling rigs used in connection with petroleum, natural gas, potash or rock salt, which are specifically provided for in recommended item I in the first volume of this Report. Recommended item VII(a) also provides for bits and augers of all kinds when used for these same purposes, including those used in connection with the drilling rigs provided for in recommended item I.

The drills and bits that would qualify for entry under recommended item VII(a) are now entered under tariff items 399a, 410d, 410 l, 410m, 848 and 848a. Imports of the goods which would be covered by the recommended item have been valued at some \$15 million annually, of which over \$10 million has consisted of oil well drilling bits imported under tariff item 848. Rock drills and bits imported under tariff item 410 l have accounted for a large part of the remainder.

The end-use provision of recommended item VII(a) is intended to include the end uses specified in the existing items. However, whereas motive power is now specifically excluded from tariff items 410d and 410m, no such exclusion is contained in recommended item VII(a).

The rates of duty now applicable to drills and bits under the existing tariff items vary considerably. No support for these differences was brought forward at the public hearing and the Board does not consider that they should be continued. Except for the drilling rigs for natural gas, oil, rock salt and potash operations that are referred to in recommended item I(c) and (d), all the bits, drills and augers covered by the present mining equipment schedule are consolidated in recommended item VII(a) which would be governed by a class or kind clause; they would be entered duty-free from all countries when not made in Canada, and at a British preferential rate of 5 p.c., a most-favoured-nation rate of 15 p.c. and a general rate of 25 p.c. when of a class or kind made in Canada.

The implementation of the Board's recommendations would result in oil well drilling bits being classified according to whether or not they were of a class or kind made in Canada. At present all oil well drilling bits other than those used in seismic exploration are entered duty-free. Seismograph drilling bits are now dutiable at a British preferential rate of 5 p.c. and a most-favoured-nation rate of 10 p.c. under tariff item 399a; since they are already deemed to be of a class or kind made in Canada, the Board's recommendation would result in an increase of the most-favoured-nation tariff by 5 percentage points.

The bits and drills now entered under tariff item 410 1 are dutiable at a British preferential rate of 5 p.c. and a most-favoured-nation rate of 15 p.c. whether or not they are of a class or kind made in Canada. Under the Board's recommendations, those of a class or kind made in Canada would continue to be dutiable at the same rates as at present; others would qualify for duty-free entry.

The diamond drills, core drills and electrically operated rotary coal drills of a class or kind not made in Canada, now classified under tariff item 410m, would continue duty-free under recommended item VII(a); the British preferential rate on those of a class or kind made in Canada would be increased from free to 5 p.c. and the most-favoured-nation rate from 10 p.c. to 15 p.c. The specific exclusion of motive power for diamond drills and core drills in tariff item 410m is not continued in the recommended item.

Bits and drills now classified under tariff item 410d would continue duty-free if of a class or kind not made in Canada, but would become dutiable otherwise. It is the Board's understanding that most of the drills and bits imported under this item have been for use in drilling for water and are not currently obtainable from Canadian manufacturers. The motive power for use with such water well drilling rigs is now specifically excluded from tariff item 410d and is entered chiefly under tariff item 428c at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. The motive power would be encompassed in recommended item VII(a).

Tariff item 848a is qualified by the phrase "of a class or kind not made in Canada". Consequently those bits and drills now entered under that item would qualify for entry under recommended item VII(a)(ii) and would continue to have duty-free entry.

Recommended item VII(b) provides for tungsten carbide inserts, now described in tariff item Ex. 410 1 and in the same words in tariff items Ex. 427(1) and Ex. 711, with a British preferential rate of 5 p.c. and a most-favoured-nation rate of $7\frac{1}{2}$ p.c., bound under the General Agreement on Tariffs and Trade.

The Board considers that it is no longer necessary to specify that the inserts must be imported by manufacturers for use only in their own factories in the manufacture of hard metal-tipped rock drills. Moreover, since there may be methods other than brazing for attaching inserts to rock drills, the phrase "to be brazed to rock drills" could be restrictive. Also, there might be some question whether the term "rock drills" encompasses coal drills. Accordingly, the recommended item provides for tungsten carbide inserts for attachment to rock or coal drilling bits.

Tungsten carbide inserts in a wide range of qualities are available from Canadian manufacturers, and the Board recommends that they be made dutiable at the same rates as those recommended for other mining equipment, including bits and drills, which is made in Canada. This would mean no change in the British preferential rate of 5 p.c. but it would mean an increase in the most-favoured-nation rate from $7\frac{1}{2}$ p.c. to 15 p.c.

Recommended Item VIII

VIII Machinery and apparatus for use in mining, quarrying, the development of mineral deposits, or the processing of ores, metals or minerals, namely:
 (a) Crushing and grinding machines;
 Mine hoists;
 Parts of all the foregoing

5 p.c.	15 p.c.	25 p.c.
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(b) Mine roof and wall supports and support systems, of metal, including yielding props, chocks, roof-bars, and chock release apparatus, but not including roof bolts or washers or nuts therefor;
 Mining machines for extracting and loading minerals directly from the working face;
 Trucks, tractors, or shuttle cars, self-propelled, for use exclusively underground;
 Tubes or shells to be inserted in the face for breaking down coal or other minerals by the release of carbon dioxide or compressed air; pipes, tubes and fittings for use therewith;
 Parts of all the foregoing;
 Conveyors, of a class or kind not made in Canada;
 Parts, of a class or kind not made in Canada, for conveyors

Free	Free	Free
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(c) Air engines;
 Coal cutting machines;
 Dust collectors;
 Elevating platforms, including raise climbers, for use underground;
 Flame-proof enclosed driving motors;
 Loading machines, including draglines and power shovels;
 Machinery and apparatus, including the hulls of dredges, floating or shore discharge pipeline or booster station equipment, to be incorporated into dredging plants;
 Pumps, vacuum pumps, and compressors;
 Scales for use with conveyors:
 (i) Of a class or kind made in Canada; parts thereof

5 p.c. 15 p.c. 25 p.c.

(ii) Of a class or kind not made in Canada; parts thereof

Free Free Free

Recommended items VIII and IX cover a wide range of machinery and apparatus used in mining and mineral processing. The goods listed might all have been contained in one tariff item under some heading such as "machinery and apparatus for use in the processing of ores, metals or minerals"; however, this would have resulted in a very long list of named goods and for this reason the goods were divided between two items. Generally speaking those listed in item VIII are those used in the early stages of mineral extraction and those in item IX in the later stages. This division is not intended to be restrictive, for example the pumps and compressors even if used in the later stages of mineral processing would still be eligible for entry under item VIII.

Recommended item VIII provides common rates of duty for a wide range of equipment, and without regard to the particular type of mining engaged in. For instance, equipment, if named, is covered by the item whether it is used to mine nickel or rock salt or asbestos, and whether extracted from underground workings or open pits; the only significant exceptions are the provision for "trucks, tractors or shuttle cars" and "elevating platforms" which cover only those used underground. The item is divided into three sub-items, providing (a) for dutiable entry, (b) for free entry from all countries, and (c) for either free or dutiable entry depending upon whether the goods imported are made in Canada or not.

The words "crushing and grinding machines" in recommended item VIII(a) is intended to encompass the coal crushers, ore crushers, rock crushers, stamp mills and grinding mills now named in tariff item 410 1, with no change in rates of duty. Crushers are in the nature of custom-built equipment for which adequate production facilities exist in Canada; the Board recommends that they be dutiable at rates recommended in general for mining machinery of a class or kind made in Canada.

Recommended item VIII(a) also specifies mine hoists. Mine hoists of virtually all kinds used in Canada are obtainable from Canadian manufacturers. Imports are now entered mainly under tariff item 427(1) at a British preferential rate of 10 p.c. and a most-favoured-nation rate of 22½ p.c. Tariff item 410y does provide duty-free entry under these Tariffs for heavy duty mine hoists of a size and capacity not made in Canada, but imports under this item are understood to have been negligible for many years.

Recommended item VIII(b) would provide for duty-free entry of a number of named articles, most of which are now entitled to free entry under all except the General Tariff.

Mine roof and wall support systems are now entered under tariff item 410o(iii), duty-free under the British Preferential Tariff and 12½ p.c. under the Most-Favoured-Nation Tariff. Chock release apparatus, used in conjunction with roof supports, are entered under tariff item 410o(ii), duty-free under both the British Preferential and the Most-Favoured-Nation Tariffs. The Canadian market for the goods described in tariff items 410o(ii) and 410o(iii) is small, and manufacture in Canada is not likely to occur in the near future; in the opinion of the Board there is no need to encumber the administration of imports of such goods with a class or kind clause; accordingly, it is recommended that these goods be entered duty-free regardless of origin.

Recommended item VIII(b) also provides for "Mining machines for extracting and loading minerals directly from the working face". This is intended to provide for continuous mining machines which are used mainly in coal mining, and for which the Canadian market is not large. These machines, for example, the Dosco Miner, may be manufactured in Canada from time to time, but the manufacturer (Dominion Coal Company) is not interested in protection for them as they are made chiefly for the Company's own use; in fact, the Company wishes to import similar equipment at times, and the coal industry suggested free entry be allowed. Continuous miners are now entered as "coal heading machines" under tariff item 410o(i) or as "coal cutting machines" under tariff item 410m(2). They are free of duty from all countries under these items, so that no change in rates of duty is contemplated.

Self-propelled trucks and tractors of a class or kind not made in Canada for use exclusively underground in mining operations are described in item 410a(ii) which provides for free entry except under the General Tariff (27½ p.c.). Since the description does not clearly include shuttle cars, these words have been inserted. The Board is also recommending the deletion of the class or kind limitation since it understands that the vehicles described in the item are not made in Canada and that they are required in fairly limited quantities. In addition, the Board is recommending deletion of the words "mounted on wheels or on endless tracks, including motive power", as they appear to be superfluous.

Recommended item VIII(b) provides for tubes or shells to be inserted in the face for breaking down coal or other minerals. These are designed for use with compressed air or carbon dioxide, thus eliminating the risks involved in using explosives, particularly in coal mines. For coal mining, free entry from all sources is now provided in tariff item 410n. Since these tubes or shells are not made in Canada, the Board is recommending the continuation of duty-free entry. The recommended item would also apply to the pipes, tubes and fittings used with the tubes or shells. The pipes, tubes and fittings must withstand extremely high pressures; the Board was informed that they are not made in Canada, and since Canadian requirements are relatively small it is unlikely that they will be. Accordingly, the Board recommends duty-free entry for them as well. The Board sees no reason to limit the end use of these articles to coal mining, and so would provide for their entry for all mining or quarrying applications.

Certain types of conveyors of a class or kind not made in Canada, and parts thereof, are now provided for in tariff item 410a(i), duty-free in all but the General Tariff. Recommended item VIII(b) would continue the provision with substantial changes. Conveyors of a class or kind not made in Canada for use in the mineral industries would be provided for free of duty under all Tariffs. Parts for conveyors would be subject to a class or kind determination, and if of a class or kind not made in Canada would be entered free of duty under all Tariffs. Because of the variety and complexity of conveyors and conveyor systems, and the fact that most components are available in Canada, the Board believes that the recommended provisions will best serve the interests of both the mineral industries and the Canadian manufacturers.

The market for goods listed in recommended item VIII(b) is small and their manufacture in Canada is considered unlikely; the Board is recommending duty-free entry from all countries.

Recommended item VIII(c) provides for categories of goods which are or are likely to be made in Canada. The item provides for rates of duty of 5 p.c. British preferential, 15 p.c. most-favoured-nation and 25 p.c. general where imports are of a class or kind made in Canada, and for free entry of goods of a class or kind not made in Canada.

The air engines, the flame-proof enclosed driving motors and the loading machines provided for in recommended item VIII(c) are now provided for under tariff item 410a(i), if of a class or kind not made in Canada. Otherwise they are now dutiable under tariff items of more general application, such as tariff item 427(1) or 446a at a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c. In addition, one type of mine car loader is specified in tariff item 410a(iv); it would also be covered by the recommended item.

The Board recommends that the description of loading machines be amended to make plain the inclusion of draglines and power shovels. Moreover, the recommended item covers loading machines whether or not of a class or kind made in Canada; see note on existing item 410a(i).

Coal cutting machines are now described in tariff item 410 1 as "percussion coal cutters" and in 410m as "coal cutting machines". Coal cutters of the percussive type are dutiable at rates of 5 p.c. British preferential, 15 p.c. most-favoured-nation and 25 p.c. general under tariff item 410 1, while tariff item 410m provides for free entry of coal cutting machines when of a class or kind not made in Canada, or rates of free British preferential and 10 p.c. most-favoured-nation and general when of a class or kind made in Canada. In addition, coal cutting machines may sometimes be entered under tariff item 410o(i) as "coal heading machines", free of duty from all countries.

The recommended item is intended to cover all the coal cutting machines now entered under these various items.

Dust collectors are not now specifically provided for in the mining equipment schedule. Numerous types and varieties are in use; many of those imported are classified under the various general provisions of the Tariff such as tariff item 427(1), if of a class or kind made in Canada, at a British preferential rate of 10 p.c. and a most-favoured-nation rate of $22\frac{1}{2}$ p.c., and under tariff item 427a, if not of a class or kind made in Canada, duty-free under the British Preferential Tariff and $7\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff. The proposals made with respect to dust collectors are described in the note on existing item 410w. Dust collectors that are for the purposes outlined in tariff item 410z are dealt with in recommended item XII.

Elevating platforms, including raise climbers, which are provided for in recommended item VIII(c), are a type of equipment which has come into use in mining only recently. They are not now provided for in the mining equipment schedule and are entered under general tariff items pertaining to machinery. Two varieties, the raise climber and a device marketed under the name "Giraffe", were brought to the attention of the Board. They are used in mines to raise a miner mechanically to different elevations along the working face. Some types of elevating platforms are made in Canada and some must be imported. Mine Equipment Company Limited proposed that provision be made for raise climbers in the mining equipment schedule.

The provision for machinery and apparatus for dredging plants in recommended item VIII(c) would provide for the machinery of floating dredges now entered under tariff item 410f(1) and for the goods now entered under tariff item 410f(2). However, while the recommended item provides for all the components of dredging plants it would not cover the importation of a completely assembled dredging plant. Whereas all this equipment is now entered free of duty, it would become dutiable under the recommended item when of a class or kind made in Canada. The recommended changes in wording are designed to assist in the administration of this provision.

Pumps and vacuum pumps are listed in recommended item VIII(c); in addition, mercury pumps are named in recommended item IX(a). Some of these pumps are now provided for in tariff items 410q, 410r and 410w; others are entered under tariff items of general application such as 427(1) and 427(a). A wide variety of pumps for the mineral industries is made in Canada. Imports are also substantial, consisting in part of specialty pumps not made in Canada and in part of types competing with those produced in Canada.

On pumps of a class or kind made in Canada, the rates recommended by the Board would mean an increase from the most-favoured-nation rate under tariff item 410w and a decrease from all the rates under tariff items 427(1) and 410r.

Representations respecting a particular type of pump were made by the coal industry. An official of a western coal mining company said that a method of extracting coal from a seam by the use of water under high pressure was being explored. The water is introduced through holes drilled down into the seam from the surface, cutting the coal out of the seam and flushing it down to the main haulage of the mine. The Board was told that, although the high pressure pumps used for this purpose were not made in Canada, they had been assessed at $22\frac{1}{2}$ p.c., which is the most-favoured-nation rate under tariff item 427(1). Pumps of the same design were said to be used in connection with oil well drilling as well; when for that use they can be imported free of duty under tariff item 848. A spokesman for the Machinery & Equipment Manufacturers' Association of Canada indicated he had no objection to the proposal of the coal industry respecting high pressure pumps provided the clause "of a class or kind not made in Canada" was retained.

Compressors are listed in recommended item VIII(c). While compressors may have been imported under some of the items in the mining equipment schedule as "machinery", "equipment" or "apparatus", they are not specifically named in any of the existing items; in fact they are specifically excluded from part of tariff item 410p. They are entered principally under tariff items 427(1) and 427a.

In most mines compressors play an important part, supplying compressed air for the operation of drills, air engines, cars and machines of various kinds. Many kinds of compressors are made in Canada, some are not; the Board is recommending that they be specifically provided for in the mining equipment schedule, free of duty if not made and dutiable at 5 p.c. British preferential and 15 p.c. most-favoured-nation, if made. The Board received no proposals respecting compressors in general; nevertheless, the Board is of the opinion that compressors should be provided for in the mining equipment schedule.

The provision for scales for use with conveyors in recommended item VIII(c) would replace the provision for automatic scales for use with conveyors in tariff item 410o(i), and those of a class or kind made in Canada would become dutiable. The Board considers that the meaning of the word "automatic" is obscure and unnecessary in the context of this provision.

Recommended Item IX

- IX Machinery and apparatus for use in the processing, smelting or refining of ores, metals or minerals, namely:
- (a) Machinery and apparatus for sintering or pelleting iron ore, concentrated or not, or flue dust;
- Machinery and apparatus for use in the construction, equipment and repairs of blast furnaces for smelting iron ore, such machinery and apparatus to include blast furnace blowers, hot blast stoves and burners, blast piping and valves connecting the blowers with the furnace, scale cars, charging and hoisting apparatus, blast furnace gas piping, cleaners and washers;
- Machinery and apparatus, of a class or kind not made in Canada, for use exclusively in handling materials to be charged into a blast furnace or an electric smelting furnace, from the dock, car or stock pile, at the smelting works;
- Machinery for the extraction of precious metals by the chlorination or cyanide processes, not including pumps, vacuum pumps, or compressors;
- Mercury pumps;
- Non-metallic heating elements;
- Parts of all the foregoing

Free

Free

Free

- (b) Agitators;
- Amalgam cleaners;
- Automatic ore samplers;
- Blowers, of iron or steel;
- Classifiers;
- Converting apparatus for metallurgical processes;
- Feeders, mechanical;
- Filters;
- Flotation machines, flotation cells, and oil feeders and reagent feeders therefor;
- Furnace slag trucks and slag pots;
- Pyrometers;
- Retorts;
- Screens, including oscillating, revolving, shaking, stationary, travelling and vibrating screens, and grizzlies;
- Separators, including jigs and magnetic or electric separators and magnetic pulleys;
- Slime or concentrating tables;
- Thickeners;
- Apparatus for use in chemical conversion, extraction, reduction or recovery in metallurgical operations;
- Machinery and apparatus for use in the refining of metals or in roasting or smelting or the production of anodes, cathodes, blocks, slabs, pigs or ingots in such processes;

Machinery and apparatus for use in washing, screening, drying or dry cleaning coal:

(i) Of a class or kind made in Canada; parts thereof

5 p.c.

15 p.c.

25 p.c.

(ii) Of a class or kind not made in Canada; parts thereof

Free

Free

Free

As mentioned in the first paragraph in the notes on recommended item VIII, item VIII and item IX generally speaking list goods used in the early and the later stages of mineral processing, respectively.

Recommended item IX is divided into two parts, (a) and (b). The first part provides duty-free entry for all the articles listed therein. The second part provides a British preferential rate of 5 p.c., a most-favoured-nation rate of 15 p.c. and a general rate of 25 p.c. on goods of a class or kind made in Canada and free entry for goods of a class or kind not made in Canada.

The first two provisions of recommended item IX(a) reproduce, except for minor changes in wording, the provisions of tariff item 410g. The word "nodulizing" has been replaced by "pelleting" to conform with current usage. The coverage of the recommended item goes beyond the coverage of tariff item 410g to the extent that blast furnace blowers are specified; these are now classified under tariff item 410t. In addition, whereas tariff item 410g specifically excludes structural iron work, valves ten and one-half inches or less in diameter, and pipes of iron or steel, the recommended item does not.

While some of the machinery and apparatus provided for in these first two provisions are undoubtedly of types made in Canada, the most-favoured-nation and general rate of 5 p.c. under existing tariff item 410g would be removed. In reaching its conclusions, the Board is mindful of the interest of the primary iron and steel industry in these goods, both as users of machinery and as producers of steel.

Recommended item IX(a) also provides for the goods now entered under tariff item 410k with continuing free entry and only minor changes in wording. Similarly the provision of tariff item 410p relating to machinery for the extraction of precious metals is continued without change in wording or rates.

The mercury pumps and non-metallic heating elements named in the recommended item are also now entered free of duty under tariff item 410s.

Recommended item IX(b) lists a wide variety of articles and categories of equipment. Most of these are now named in the mining equipment schedule. In addition, the Board is recommending

that certain types of equipment used by the mineral industries and now classified elsewhere in the Tariff be brought within the scope of recommended item IX(b).

Amalgam cleaners, automatic ore samplers, pyrometers and retorts are all at present specified free of duty in tariff item 410s. The furnace slag trucks and slag pots and some of the blowers are now provided for in tariff item 410t. Flotation machines and related articles, magnetic separators, magnetic pulleys, jigs and some of the filters, pumps and screens are at present provided for under tariff item 410w. Slime or concentrating tables are now entered under tariff item 410v. Converting apparatus for metallurgical processes is now entered under tariff item 410p.

The words "feeders, mechanical" are intended to replace the words "automatic feeders" in tariff item 410s. The reference to filters in the recommended item would encompass filters for a somewhat broader range of uses than is now provided for in tariff item 410w.

The provision in the recommended item for screens, while encompassing those now classified under tariff item 410w, is intended to be broader in scope. It would include screens which are now entered under tariff items of general application such as tariff items 427(1) and 427a.

The recommended item also provides for three categories of equipment each of which is now classified wholly or partly under the mining equipment schedule.

Tariff item 410p now provides for "apparatus for chemical conversion, extraction, reduction or recovery, n.o.p." when for use exclusively in metallurgical operations. This wording has received very broad interpretation; the Board understands that material handling equipment for example has been entered under this provision. The Board recommends a change in wording which is intended to limit the scope of the provision to that apparatus used in the chemical conversion, extraction, reduction or recovery itself. In addition, the Board recommends duties of 5 p.c. British preferential and 15 p.c. most-favoured-nation on that apparatus of a class or kind made in Canada; that which is not made would continue to enter free of duty.

Machinery and apparatus for use in the refining of metals or in roasting or smelting is now classified under a number of tariff items including 410p, 410t and 410x as well as under tariff items of more general application such as tariff items 427(1) and 427a. More particularly, tariff item 410x provides for a broad range of goods of a class or kind not made in Canada for use in the refining of metals. Furnaces, rotary kilns and revolving roasters for roasting are provided for in tariff item 410t. Furnaces for the smelting of ores are named in tariff item 410p.

Machinery and apparatus for use in washing or dry cleaning coal at coal mines or coke plants are now provided for in tariff item 410b. The recommended item provides for this equipment and, in addition, for machinery and apparatus for use in screening and drying coal; and it removes the restriction as to location. Equipment for drying coal was referred to at the public hearing and the Board considers that it should be dealt with in the same way as equipment for washing, screening or dry cleaning coal. The Board understands that the market for this equipment in Canada is small and occasional.

Finally, the recommended item would provide for a number of types of equipment such as agitators, classifiers, separators and thickeners. While some of these types of goods may be entered under tariff item 410p for certain uses, most of them are classified under tariff items of general application such as 427 and 427a. The Board considers that they should be included specifically in the mining equipment schedule, as they are articles commonly used in mineral processing.

The Canadian Metal Mining Association proposed that classifiers, thickeners, specific gravity separators and heavy media separators be brought within the scope of the mining equipment schedule.

The term "classifiers" is applied to a variety of machines, usually used to assure that ore is ground to the size required for the separation of the mineral from the gangue. Classifiers are often used in conjunction with grinding mills and concentrators. Some classifiers are designed to use air as a medium of classification and some to use water. There are centrifugal classifiers as well. Vibrating screens are a type of classifier but they are not usually called classifiers. A number of types of classifiers are made in Canada.

A thickener is designed to separate a liquid from solid particles in suspension. It usually consists of a large tank equipped with various devices to remove the solids as they settle.

Specific gravity separators and heavy media separators are similar in principle to jigs in that they depend upon differences in specific gravity to separate particles of ore from gangue. Some are made in Canada and some are not.

Agitators consist of tanks and ancillary equipment designed to keep finely crushed ore mixed with a liquid reacting agent.

The provision for separators is intended to encompass a number of devices including the specific gravity separators and heavy media separators referred to by the Canadian Metal Mining Association. In addition, the Board intends "separators" to encompass any apparatus, not specifically named in the recommended item, which performs a separating function for uses specified in the item.

Recommended Item X

- X Diesel-powered self-propelled dump trucks, mounted on rubber-tired wheels or on rubber-tired wheels and half-tracks, having a rated capacity by struck volume of not less than $9\frac{1}{2}$ cubic yards, and by payload weight of not less than 15 tons, and complete parts thereof, for off-highway use in carrying minerals or other excavated materials at mines, quarries, gravel and sand pits or at construction sites

5 p.c. 10 p.c. 25 p.c.

This item would replace tariff item 410a(iii) with no substantial change in scope. Whereas tariff item 410a(iii) is limited to side or rear dump trucks, the recommended item provides for dump trucks without this restriction. The wording of the end-use provision has been shortened without any intention of changing its scope.

The Board is recommending that the British preferential rate be raised from free to 5 p.c. and the most-favoured-nation rate from $7\frac{1}{2}$ p.c. to 10 p.c.; the general rate would be reduced from $27\frac{1}{2}$ p.c. to 25 p.c. to conform with other recommended items. Most parts for off-highway trucks, certainly the more costly ones, qualify for duty-free entry. Having this in mind, the Board considers that the recommended rates would be sufficient to protect efficient production in Canada.

Recommended Item XI

- XI Machinery and apparatus for use in producing coal gas and coke; machinery and apparatus for use in the distillation or recovery of products from coal tar or coal gas:

(i) Of a class or kind made in Canada; parts thereof

5 p.c. 15 p.c. 25 p.c.

(ii) Of a class or kind not made in Canada; parts thereof

Free Free Free

This recommended item would cover certain machinery and apparatus now described in item 410b for use in the production of coke and coal gas and in recovery of products from coal tar or coal gas. The wording is changed slightly to make clear the exclusion of natural gas from this tariff item, in line with the Board's recommendation that equipment for natural gas plants be covered in recommended item IV (see Volume 1). In recent years most imports under tariff item 410b appear to have been for use in natural gas processing plants.

The rates of duty in recommended item XI are the same as those in recommended item IV covering natural gas processing plants. They would represent an increase in rates of 5 percentage points under both the British Preferential and Most-Favoured-Nation Tariffs on machinery of a class or kind made in Canada; on that not made in Canada the present 10 p.c. most-favoured-nation rate would be eliminated.

Recommended Item XII

XII	Machinery and apparatus for the recovery of solid or liquid particles from flue or other waste gases at metallurgical or industrial plants:		
	(i) Of a class or kind made in Canada; parts thereof		
	5 p.c.	15 p.c.	25 p.c.
	(ii) Of a class or kind not made in Canada; parts thereof		
	Free	Free	Free

This item would replace tariff item 410z without substantial change in coverage. The term "n.o.p." is not reproduced in the recommended item but the Board understands that no change in coverage would result therefrom.

The Board is of the opinion that motive power, tanks for gas, certain valves, and pipes of iron or steel need no longer be excluded from the item. It has recommended deletion of similar exclusions from other items in the mining equipment schedule.

Recommended Item XIII

XIII	(a) Equipment for distributing stone dust in mines; Rescue appliances, designed for use in mines, where artificial breathing is necessary in the presence of noxious gases, including oxygen pumps for use exclusively in connection with such appliances; Automatic resuscitation apparatus for artificial breathing to aid in the saving of human life; Apparatus for determining the presence or quantity of carbon monoxide in the blood; Inhalators for treating victims of noxious gas; Portable respirators, including hose mask outfits complete with face piece, harness, air line and air pump or blower, designed for use in noxious atmosphere; Indicating or continuous recording equipment or automatic alarm equipment for detecting or indicating noxious gases or noxious vapours in the atmosphere; Parts of all the foregoing		
	Free	Free	Free

(b) Safety goggles designed for eye protection of workers employed in hazardous work; parts thereof

Free

Free

Free

(c) Miners' safety lamps; miners' acetylene lamps; accessories for cleaning, filling, charging, opening and testing miners' lamps; Battery renewal preparations for miners' electric safety lamps; All for use exclusively at mines; Parts of the foregoing

Free

Free

Free

Recommended items XIII(a) and XIII(b) would provide duty-free entry for the equipment for distributing stone dust in mines now classified under tariff item 410h, and for the safety equipment now classified under tariff item 410i. This equipment is now free of duty except for a general rate of 10 p.c. under tariff item 410h. It is in the nature of safety equipment and the market for it in Canada is very limited.

It seems to the Board that the wording in the existing items is unnecessarily detailed; the recommended item is shorter. Some extension of the scope of the existing items would result, but in ways which the Board considers appropriate for safety equipment.

One change in wording warrants particular note. Whereas the existing items refer to poisonous gases and specify harmful substances such as paints, the word "noxious" is used in the recommended item to describe harmful gases, vapours and other substances. This would ensure that certain safety devices used in the presence of substances which are harmful but not poisonous would be covered by the item. This might apply, for example, to carbon dioxide and methane encountered in coal mines.

Recommended item XIII(c) would replace tariff item 410j with continuing duty-free entry for the equipment entered thereunder. A change in wording is recommended so that parts of accessories as well as of the safety lamps or acetylene lamps would be entered under the item.

Recommended Items 442d, 1056, and 1058

442d	Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported for use in the manufacture of goods entitled to entry under tariff items 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k and 447a, under such regulations as the Minister may prescribe	
	Free	Free 10 p.c.
1056	Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada.	When used in the manufacture of goods entitled to entry under tariff items 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k, and 447a
		99 p.c. drawback
1058	Materials.	When used in the manufacture of articles entitled to entry under tariff items 411 and 411a, not including saws, when such articles are used as specified in said items
		60 p.c. drawback

The Board is recommending the deletion from existing items 442d, 1056 and 1058 of all reference to those tariff items which in this Report the Board is recommending be deleted.

In view of the recommended rates for goods of a class or kind made in Canada, the Board is not recommending any special provision for the materials entering into their manufacture. Should special circumstances arise in which it is considered that some relief from the duty on particular materials is warranted, this could be done, on a selective basis, under the provisions of Section 273 of the Customs Act.

APPENDIX I

Import Statistics

Table 1

Imports: Loading machines, shaker trough or belt trough conveyors, air engines, flame proof enclosed driving motors, of a class or kind not made in Canada, and integral parts of all motive power or machinery mentioned in this item, for use exclusively at the face in mining operations, s.c. 5471

Tariff items 410a(i), 410a(ii), 410a(iii) and 410a(iv)

<u>Year</u> ^(a)	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	245,176	48,695	196,481	19,648	10.0
1947	850,140	36,244	813,896	81,390	10.0
1948	1,659,616	716,615	943,001	94,300	10.0
1949	2,488,083	1,069,339	1,418,744	141,875	10.0
1950	3,724,148	2,462,004	1,262,144	126,213	10.0
1951	7,968,917	2,752,302	5,216,615	429,625	8.2
1952	8,814,399	3,063,354	5,751,045	449,699	7.8
1953	6,161,903	2,546,075	3,615,828	285,868	7.9
1954	5,660,809	2,680,614	2,980,195	235,828	7.9
1955	8,506,315	4,494,414	4,011,901	323,950	8.1
1956	17,639,069	7,981,004	9,658,065	744,986	7.7
1957	18,314,550	11,118,113	7,196,437	542,839	7.5
1958	11,757,714	9,081,742	2,675,972	202,234	7.6
1959	14,767,724	8,876,788	5,890,936	448,079	7.6
1960	10,098,851	5,799,625	4,299,226	325,934	7.6
1961	10,465,365	6,665,362	3,800,003	285,933	7.5
<u>2. United Kingdom</u>					
1939	48,695	48,695	-	-	-
1947	36,244	36,244	-	-	-
1948	48,300	48,300	-	-	-
1949	56,349	56,349	-	-	-
1950	116,172	116,172	-	-	-
1951	257,864	257,864	-	-	-
1952	162,005	162,005	-	-	-
1953	286,373	286,373	-	-	-
1954	142,197	142,197	-	-	-
1955	834,984	834,984	-	-	-
1956	2,922,014	2,906,000	16,014	1,201	7.5
1957	1,096,544	1,096,544	-	-	-
1958	997,867	974,698	23,169	1,738	7.5
1959	770,885	770,885	-	-	-
1960	666,809	652,215	14,594	1,102	7.6
1961	1,956,822	1,956,390	432	33	7.6

(a) For an analysis of imports under this item, see Appendix II

Table 1
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. United States</u>					
1939	195,746	-	195,746	19,574	10.0
1947	813,896	-	813,896	81,390	10.0
1948	1,611,316	668,315	943,001	94,300	10.0
1949	2,426,235	1,007,491	1,418,744	141,875	10.0
1950	3,606,138	2,344,203	1,261,935	126,192	10.0
1951	7,708,838	2,492,223	5,216,615	429,625	8.2
1952	8,650,906	2,901,349	5,749,557	449,588	7.8
1953	5,860,446	2,258,817	3,601,629	284,093	7.9
1954	5,513,357	2,533,537	2,979,820	235,781	7.9
1955	7,635,479	3,657,026	3,978,453	319,368	8.0
1956	14,634,961	5,056,531	9,578,430	737,611	7.7
1957	17,156,260	9,960,296	7,195,964	542,801	7.5
1958	10,713,663	8,088,587	2,625,076	198,416	7.6
1959	13,939,310	8,082,228	5,857,082	445,474	7.6
1960	9,322,868	5,038,479	4,284,389	324,814	7.6
1961	8,382,051	4,591,905	3,790,146	284,722	7.5

Table 2

Imports: Coal, coke and gas machinery, as enumerated in tariff item 410b and parts, s.c. 5527

Tariff item 410b

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	155,594	92,365	63,229	6,323	10.0
1947	1,023,889	64,332	959,557	95,956	10.0
1948	819,514	71,208	748,306	74,831	10.0
1949	331,861	13,079	318,782	31,878	10.0
1950	386,661	22,947	363,714	36,371	10.0
1951	1,314,002	31,197	1,282,805	128,281	10.0
1952	1,096,289	7,076	1,089,213	108,921	10.0
1953	1,836,419	7,590	1,828,829	182,883	10.0
1954	1,060,794	2,528	1,058,266	105,827	10.0
1955	1,013,932	5,174	1,008,758	100,876	10.0
1956	2,128,102	5,679	2,122,423	212,243	10.0
1957	6,276,198	5,244	6,270,954	627,133	10.0
1958	6,932,408	4,010	6,928,398	692,840	10.0
1959	2,476,733	11,217	2,465,516	246,564	10.0
1960	1,925,835	13,631	1,912,204	191,355	10.0
1961	5,414,110	56,959	5,357,151	535,866	10.0

2. United Kingdom

1939	92,365	92,365	-	-	-
1947	64,254	64,254	-	-	-
1948	71,208	71,208	-	-	-
1949	13,079	13,079	-	-	-
1950	24,160	22,947	1,213	121	10.0
1951	26,388	26,388	-	-	-
1952	6,984	6,984	-	-	-
1953	7,590	7,590	-	-	-
1954	2,528	2,528	-	-	-
1955	5,121	5,121	-	-	-
1956	5,679	5,679	-	-	-
1957	5,244	5,244	-	-	-
1958	4,010	4,010	-	-	-
1959	10,240	10,240	-	-	-
1960	13,372	13,372	-	-	-
1961	56,358	56,358	-	-	-

Table 2
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. United States</u>					
1939	63,229	-	63,229	6,323	10.0
1947	959,635	78	959,557	95,956	10.0
1948	748,306	-	748,306	74,831	10.0
1949	318,782	-	318,782	31,878	10.0
1950	362,501	-	362,501	36,250	10.0
1951	1,287,614	4,809	1,282,805	128,281	10.0
1952	1,089,305	92	1,089,213	108,921	10.0
1953	1,828,829	-	1,828,829	182,883	10.0
1954	1,058,266	-	1,058,266	105,827	10.0
1955	1,008,811	53	1,008,758	100,876	10.0
1956	2,122,423	-	2,122,423	212,243	10.0
1957	6,270,543	-	6,270,543	627,092	10.0
1958	6,928,398	-	6,928,398	692,840	10.0
1959	2,466,493	977	2,465,516	246,564	10.0
1960	1,912,463	259	1,912,204	191,355	10.0
1961	5,357,151	-	5,357,151	535,866	10.0

Table 3

Imports: Machinery and appliances of iron or steel, of a class or kind not made in Canada, and elevators and machinery of floating dredges, when for use exclusively in alluvial gold mining, dredges, and parts for the development of mineral deposits, s.c. 5473

Tariff items 410f(1) and 410f(2)

<u>Year</u>	<u>Total</u> \$	<u>United States</u> \$
1939	154,451	154,451
1947	577,327	573,975
1948	965,970	965,737
1949	71,477	69,232
1950	87,194	81,341
1951	65,106	64,443
1952(a)	603,636	601,424
1953	586,551	536,767
1954	4,125,344	4,112,411
1955	1,965,449	1,957,925
1956	1,317,987	1,288,863
1957	1,549,780	1,549,129
1958	568,929	568,929
1959	189,557	189,165
1960	205,993	205,993
1961	408,944	408,944

(a) Prior to 1952 class 5473 was as follows: Machinery and appliances of iron or steel, of a class or kind not made in Canada, and elevators and machinery of floating dredges, when for use exclusively in alluvial gold mining.

Table 4

Imports: Articles for use exclusively in the metallurgy or smelting of iron, viz.:—machinery and apparatus for sintering or nodulizing iron ore, concentrated or not, or flue dust; machinery and apparatus for use exclusively in the construction, equipment and repairs of blast furnaces for smelting iron ore, such machinery and apparatus to include hot blast stoves and burners, blast piping and valves connecting the blowing engines with the furnace, scale cars, charging and hoisting apparatus, blast furnace gas piping, cleaners and washers, and parts of all the foregoing, but not to include wrought iron pipe or valves 10½ inches and under in diameter, nor structural iron work, s.c. 5461

Tariff item 410g

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
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1. Total

1939	146,495	-	146,495	7,325	5.0
1947	139,845	-	139,845	6,992	5.0
1948	93,927	526	93,401	4,670	5.0
1949	76,267	-	76,267	3,813	5.0
1950	208,899	-	208,899	10,445	5.0
1951	684,898	-	684,898	34,245	5.0
1952	1,109,192	4,756	1,104,436	55,222	5.0
1953	543,777	344	543,433	27,172	5.0
1954	1,325,473	-	1,325,473	66,274	5.0
1955	1,214,295	-	1,214,295	60,715	5.0
1956	1,093,296	436	1,092,860	54,643	5.0
1957	1,436,379	1,024	1,435,355	71,770	5.0
1958	320,269	19,665	300,604	15,030	5.0
1959	485,530	1,975	483,555	24,178	5.0
1960	2,183,638	96,784	2,086,854	104,351	5.0
1961	689,209	5,495	683,714	34,269	5.0

2. United Kingdom

1939	-	-	-	-	-
1947	-	-	-	-	-
1948	526	526	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	-	-	-	-	-
1952	4,756	4,756	-	-	-
1953	344	344	-	-	-
1954	-	-	-	-	-
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	1,024	1,024	-	-	-
1958	3,381	3,381	-	-	-
1959	1,975	1,975	-	-	-
1960	86,907	86,907	-	-	-
1961	2,696	2,696	-	-	-

Table 4
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. Germany(a)</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	472,780	-	472,780	23,639	5.0
1955	31,978	-	31,978	1,599	5.0
1956	20,333	-	20,333	1,017	5.0
1957	76,209	-	76,209	3,811	5.0
1958	8,939	-	8,939	447	5.0
1959	19,511	-	19,511	976	5.0
1960	719,874	-	719,874	35,994	5.0
1961	127,736	-	127,736	6,388	5.0
<u>4. United States</u>					
1939	146,495	-	146,495	7,325	5.0
1947	139,845	-	139,845	6,992	5.0
1948	93,401	-	93,401	4,670	5.0
1949	76,267	-	76,267	3,813	5.0
1950	208,899	-	208,899	10,445	5.0
1951	684,898	-	684,898	34,245	5.0
1952	1,104,436	-	1,104,436	55,222	5.0
1953	543,433	-	543,433	27,172	5.0
1954	852,693	-	852,693	42,635	5.0
1955	1,182,317	-	1,182,317	59,116	5.0
1956	1,072,963	436	1,072,527	53,626	5.0
1957	1,359,146	-	1,359,146	67,959	5.0
1958	307,949	16,284	291,665	14,583	5.0
1959	464,044	-	464,044	23,202	5.0
1960	1,261,578	9,877	1,251,701	62,593	5.0
1961	558,708	2,799	555,909	27,878	5.0

(a) Beginning in 1952, West Germany only

Table 5

Imports: Rescue appliances, gas indicators and safety devices for miners, firemen, and industrial workers; and parts, s.c. 9207

Tariff items 410h, 410i(1), 410i(2) and 440b

<u>Year</u>	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>United States</u> \$
1939(a)	211,529	4,624	206,486
1947	715,947	997	714,344
1948	774,732	1,725	770,851
1949	698,232	3,920	694,312
1950	971,157	9,100	962,057
1951	1,334,002	4,408	1,329,289
1952	1,364,478	10,310	1,353,985
1953	1,716,302	14,520	1,701,675
1954	1,474,904	21,836	1,444,123
1955	1,579,461	18,862	1,558,575
1956(b)	1,975,539	18,079	1,947,554
1957	2,123,827	15,727	2,094,569
1958(c)	1,741,523	16,560	1,700,625
1959	2,434,868	28,466	2,374,989
1960	2,464,962	21,708	2,414,962
1961	2,472,481	35,432	2,380,682

- (a) In 1939 class 9207 was: Rescue appliances, gas indicators and safety devices for miners, firemen and industrial workers; and parts, as enumerated in tariff item 410i
- (b) Prior to 1956 class 9207 was: Rescue appliances, gas indicators and safety devices for miners, firemen and industrial workers; and parts, as enumerated in tariff items 410h and 410i
- (c) Since 1957, has included former s.c. 9205 - Life-boats and life-saving apparatus, imported by societies to encourage the saving of human life

Table 6

Imports: Miners' acetylene lamps and parts thereof; miners' safety lamps and parts thereof; accessories for cleaning, filling, charging, opening and testing miners' lamps; battery renewal preparations for miners' electric safety lamps; all for use exclusively in mines, s.c. 5467

Tariff item 410j

<u>Year</u>	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>United States</u> \$
1939	251,051	406	250,645
1947	234,053	124	233,929
1948	241,982	-	241,982
1949	303,043	480	302,563
1950	398,762	1,917	396,845
1951	699,406	5,136	694,270
1952	396,900	6,738	390,162
1953	285,142	2,745	282,397
1954	210,555	4,115	202,109
1955	319,080	5,162	306,753
1956	481,770	16,408	456,496
1957	628,612	67,637	560,377
1958	390,937	27,679	359,152
1959	380,256	32,508	343,001
1960	549,443	26,692	520,154
1961	431,322	22,499	408,752

Table 7

Imports: Machinery and apparatus of a class or kind not made in Canada, for handling ore and other materials to be charged into the blast furnace or an electric smelting furnace, from the dock, car or stock pile, at the smelting works, s.c. 5474

Tariff item 410k

<u>Year</u>	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>United States</u> \$
1939	289	-	289
1947	-	-	-
1948	1,889	-	1,889
1949	-	-	-
1950	5,905	-	5,905
1951	193,091	-	193,091
1952	26,495	26,495	-
1953	-	-	-
1954	102,970	99,916	3,054
1955	20,147	-	20,147
1956	318	-	318
1957	127,214	-	127,214
1958	14,303	-	14,303
1959	-	-	-
1960	16,988	-	-
1961	44,217	-	44,217

Table 8

Imports: Ore crushers, rock crushers, stamp mills, grinding mills, n.o.p., and parts, for use exclusively in mining, metallurgical and quarrying operations, s.c. 5477

Tariff item 410 1

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	690,955	-	690,955	103,709	15.0
1947	1,205,876	2,666	1,203,210	203,501	16.9
1948	1,457,956	-	1,457,956	217,027	14.9
1949	1,982,663	26,742	1,955,921	291,923	14.9
1950	1,164,019	-	1,164,019	161,256	13.9
1951	1,983,931	3,187	1,980,744	286,042	14.4
1952	2,356,089	5,102	2,350,987	342,915	14.6
1953	2,242,850	988	2,241,862	334,130	14.9
1954	2,411,523	223	2,411,300	355,843	14.8
1955	2,795,035	685	2,794,350	417,292	14.9
1956	4,536,828	504	4,536,324	672,546	14.8
1957	6,265,859	5,292	6,260,567	935,320	14.9
1958	2,350,163	1,160	2,349,003	344,152	14.7
1959	2,766,037	954	2,765,083	394,838	14.3
1960	2,386,914	6,125	2,380,789	328,348	13.8
1961	2,587,779	5,644	2,582,135	353,535	13.7

2. United Kingdom

1939	139,477	-	139,477	6,974	5.0
1947	48,845	-	48,845	1,221	2.5
1948	17,795	-	17,795	890	5.0
1949	14,652	-	14,652	732	5.0
1950	133,467	-	133,467	6,673	5.0
1951	110,682	-	110,682	5,534	5.0
1952	97,324	-	97,324	4,866	5.0
1953	21,476	-	21,476	1,074	5.0
1954	58,454	-	58,454	2,923	5.0
1955	18,705	-	18,705	935	5.0
1956	79,053	-	79,053	3,953	5.0
1957	30,869	-	30,869	1,544	5.0
1958	81,980	-	81,980	4,099	5.0
1959	203,555	-	203,555	10,189	5.0
1960	288,768	131	288,637	14,430	5.0
1961	338,712	-	338,712	16,937	5.0

Table 8
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. Germany (a)</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	85,241	-	85,241	12,786	15.0
1952	25,579	-	25,579	3,837	15.0
1953	3,048	-	3,048	457	15.0
1954	22,949	-	22,949	3,442	15.0
1955	84,735	-	84,735	12,710	15.0
1956	20,394	-	20,394	3,059	15.0
1957	44,964	-	44,964	6,745	15.0
1958	17,302	-	17,302	2,595	15.0
1959	4,448	-	4,448	667	15.0
1960	69,293	-	69,293	10,395	15.0
1961	80,677	-	80,677	12,106	15.0
<u>4. United States</u>					
1939	533,628	-	533,628	93,611	17.5
1947	1,157,031	2,666	1,154,365	202,280	17.5
1948	1,439,275	-	1,439,275	216,093	15.0
1949	1,951,712	26,742	1,924,970	288,746	15.0
1950	941,848	-	941,848	141,277	15.0
1951	1,759,556	3,187	1,756,369	263,454	15.0
1952	2,231,464	3,380	2,228,084	334,212	15.0
1953	2,218,326	988	2,217,338	332,599	15.0
1954	2,325,784	223	2,325,561	348,827	15.0
1955	2,685,989	685	2,685,304	402,806	15.0
1956	4,434,680	504	4,434,176	665,129	15.0
1957	6,003,731	5,292	5,998,439	899,767	15.0
1958	2,117,363	1,160	2,116,203	317,431	15.0
1959	2,551,885	622	2,551,263	383,178	15.0
1960	1,946,791	5,994	1,940,797	291,516	15.0
1961	2,166,519	5,644	2,160,875	324,211	15.0

(a) Beginning in 1952, West Germany only

Table 9

Imports: Coal crushers, percussion coal cutters, coal augers, rotary coal drills, n.o.p., and parts, when for use exclusively in mining, metallurgical and quarrying operations, s.c. 5478

Tariff item 410 1

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	5,410	-	5,410	917	17.0
1947	34,131	-	34,131	4,770	14.0
1948	28,129	-	28,129	3,274	11.6
1949	69,827	-	69,827	9,621	13.8
1950	23,313	-	23,313	2,850	12.2
1951(a)	56,817	1,153	55,664	7,452	13.4
1952	96,782	-	96,782	13,187	13.6
1953	144,139	-	144,139	19,927	13.8
1954	113,130	14,309	98,821	13,342	13.5
1955	83,084	-	83,084	11,657	14.0
1956	164,858	-	164,858	23,585	14.3
1957	66,226	-	66,226	8,925	13.5
1958	47,774	64	47,710	6,970	14.6
1959	95,615	-	95,615	10,496	11.0
1960	172,998	-	172,998	17,619	10.2
1961	262,916	1,333	261,583	27,997	10.7
<u>2. United Kingdom</u>					
1939	410	-	410	21	5.1
1947	8,022	-	8,022	201	2.5
1948	8,906	-	8,906	389	4.4
1949	8,624	-	8,624	431	5.0
1950	6,471	-	6,471	324	5.0
1951	8,981	-	8,981	449	5.0
1952	13,306	-	13,306	665	5.0
1953	16,932	-	16,932	847	5.0
1954	28,833	14,015	14,818	741	5.0
1955	8,053	-	8,053	403	5.0
1956	11,438	-	11,438	572	5.0
1957	10,091	-	10,091	505	5.0
1958	1,862	-	1,862	93	5.0
1959	38,478	-	38,478	1,924	5.0
1960	83,330	-	83,330	4,167	5.0
1961	111,517	-	111,517	5,575	5.0

(a) Prior to 1951, s.c. 5478 was: Percussion cutters, coal augers, rotary coal drills, n.o.p., and complete parts, when for use exclusively in mining, metallurgical and quarrying operations

Table 9
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. United States</u>					
1939	1,510	-	1,510	264	17.5
1947	26,109	-	26,109	4,569	17.5
1948	19,223	-	19,223	2,885	15.0
1949	45,374	-	45,374	6,816	15.0
1950	13,123	-	13,123	1,968	15.0
1951	45,757	1,153	44,604	6,691	15.0
1952	80,690	-	80,690	12,104	15.0
1953	127,207	-	127,207	19,080	15.0
1954	82,908	294	82,614	12,393	15.0
1955	74,115	-	74,115	11,117	15.0
1956	152,018	-	152,018	22,803	15.0
1957	56,135	-	56,135	8,420	15.0
1958	45,912	64	45,848	6,877	15.0
1959	57,137	-	57,137	8,572	15.0
1960	88,415	-	88,415	13,264	15.0
1961	149,558	1,333	148,225	22,240	15.0

Table 10

Imports: Rock drills, n.o.p., and complete parts, except bits, for use exclusively in mining, metallurgical and quarrying operations, s.c. 5481

Tariff item 410 1

<u>Year</u>	<u>Volume No.</u>	<u>Value \$</u>	<u>Unit Value \$</u>	<u>Duty Collected \$</u>	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	572	793,680	1,387.55	125,011	15.8
1947	506	707,229	1,397.69	114,958	16.3
1948	471	891,553	1,892.89	128,726	14.4
1949	443	1,336,883	3,017.79	195,254	14.6
1950	1,733	1,738,944	1,003.43	250,750	14.4
1951	1,624	3,389,778	2,087.30	497,098	14.7
1952	1,592	3,237,782	2,033.78	474,664	14.7
1953	1,444	3,489,463	2,416.53	506,696	14.5
1954	1,802	2,344,770	1,301.20	341,368	14.6
1955	917	2,739,923	2,987.92	400,937	14.6
1956 (a)	1,180	3,009,563	2,550.48	436,463	14.5
1957	1,393	3,232,955	2,320.86	461,313	14.3
1958	657	1,960,197	2,983.56	266,944	13.6
1959	1,230	2,182,753	1,774.60	283,637	13.0
1960	915	2,279,010	2,490.72	307,253	13.5
1961	820	2,119,825	2,585.15	302,433	14.3
<u>2. United Kingdom</u>					
1939	78	111,930	1,435.00	5,597	5.0
1947	37	59,187	1,599.65	1,480	2.5
1948	61	56,609	928.02	2,830	5.0
1949	67	52,916	789.79	2,646	5.0
1950	216	102,387	474.01	5,119	5.0
1951	117	110,427	943.82	5,521	5.0
1952	104	110,130	1,058.94	5,507	5.0
1953	270	166,299	615.92	8,315	5.0
1954	35	103,572	2,959.20	5,179	5.0
1955	17	100,043	5,884.88	5,114	5.1
1956	90	149,714	1,663.49	7,486	5.0
1957	152	234,635	1,543.65	11,732	5.0
1958	305	236,742	776.20	11,838	5.0
1959	455	397,921	874.55	19,896	5.0
1960	283	303,155	1,071.22	15,204	5.0
1961	93	153,662	1,652.28	7,973	5.2

(a) Prior to 1956, s.c. 5481 was: Rock drills, n.o.p., and complete parts for use exclusively in mining, metallurgical and quarrying operations

Table 10
(Cont'd)

<u>Year</u>	<u>Volume No.</u>	<u>Value \$</u>	<u>Unit Value \$</u>	<u>Duty Collected \$</u>	<u>Duty as per cent of Dutiable Value</u>
<u>3. Sweden</u>					
1939	-	167	-	29	17.4
1947	-	-	-	-	-
1948	16	16,496	1,031.00	2,474	15.0
1949	120	173,240	1,443.67	25,986	15.0
1950	1,101	881,207	800.37	132,193	15.0
1951	1,161	2,082,990	1,794.13	312,449	15.0
1952	907	1,423,609	1,569.58	213,541	15.0
1953	610	1,527,606	2,504.27	229,141	15.0
1954	209	861,029	4,119.76	129,145	15.0
1955	564	1,067,073	1,891.97	160,091	15.0
1956	505	960,607	1,902.19	144,091	15.0
1957	570	367,615	644.94	55,142	15.0
1958	69	132,814	1,924.84	19,921	15.0
1959	322	225,300	699.69	33,815	15.0
1960	231	255,308	1,105.23	38,344	15.0
1961	344	287,468	835.66	43,135	15.0

4. United States

1939	494	681,530	1,379.62	119,376	17.5
1947	469	647,884	1,381.42	113,450	17.5
1948	394	818,448	2,077.28	123,422	15.1
1949	256	1,110,727	4,338.78	166,622	15.0
1950	416	755,350	1,815.75	113,438	15.0
1951	346	1,193,096	3,448.25	178,965	15.0
1952	570	1,696,647	2,976.57	254,507	15.0
1953	564	1,791,639	3,176.66	268,665	15.0
1954	1,558	1,373,685	881.70	206,071	15.0
1955	336	1,557,721	4,636.07	233,652	15.0
1956	583	1,887,440	3,237.46	283,116	15.0
1957	667	2,626,131	3,937.23	393,919	15.0
1958	281	1,558,643	5,546.77	233,515	15.0
1959	453	1,523,903	3,364.02	228,119	15.0
1960	371	1,664,499	4,486.52	249,519	15.0
1961	360	1,648,787	4,579.96	246,912	15.0

Table 11

Imports: Rock drill bits, s.c. 5531

Tariff items 410 1, 446k(1) and 446k(2)

<u>Year</u> ^(a)	<u>Volume</u> No.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$	<u>Duty</u> <u>Collected</u> \$	<u>Duty as per cent</u> <u>of Dutiable Value</u>
<u>1. Total</u>					
1956	223,520	1,599,610	7.16	214,180	13.5
1957	228,244	2,032,849	8.91	260,072	13.2
1958	145,727	1,558,274	10.69	159,312	10.7
1959	123,252	1,260,578	10.23	148,787	12.0
1960	86,656	1,446,155	16.69	159,345	11.1
1961	73,863	1,127,261	15.26	130,715	11.6
<u>2. United Kingdom</u>					
1956	4,074	9,332	2.29	590	6.8
1957	21,562	176,171	8.17	8,769	5.0
1958	5,865	38,853	6.62	2,290	6.0
1959	2,572	17,226	6.70	966	5.6
1960	3,310	19,985	6.04	1,061	5.4
1961	2,690	16,209	6.03	952	6.0
<u>3. Sweden</u>					
1956	79,338	798,208	10.06	119,764	15.0
1957	81,689	799,697	9.79	121,953	15.2
1958	35,975	363,321	10.10	55,980	15.4
1959	29,234	332,089	11.36	57,333	17.3
1960	28,669	294,299	10.27	46,399	15.8
1961	29,862	340,951	11.42	56,121	16.5
<u>4. United States</u>					
1956	138,952	787,770	5.67	93,062	11.9
1957	117,893	1,014,929	8.61	123,371	13.0
1958	39,199	815,639	20.81	82,746	11.0
1959	60,663	772,158	12.73	83,420	11.1
1960	41,383	1,035,090	25.01	103,849	10.1
1961	28,782	715,560	24.86	70,671	9.9

^(a) Included in s.c. 5481 prior to 1956

Table 12

Imports: Tungsten carbide inserts, s.c. 6258

Tariff items Ex 410 1, Ex 427(1), 711 and Ex 711

<u>Year(a)</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1956	1,140,296	-	1,140,296	114,119	10.0
1957	1,018,617	1,618	1,016,999	81,308	8.0
1958	1,239,687	676	1,239,011	78,864	6.4
1959	1,222,560	4,790	1,217,770	86,814	7.1
1960	1,248,919	1,996	1,246,923	98,434	7.9
1961	812,676	1,143	811,533	66,023	8.1
<u>2. United Kingdom</u>					
1956	268	-	268	17	6.3
1957	94	-	94	5	5.3
1958	224	-	224	11	4.9
1959	-	-	-	-	-
1960	-	-	-	-	-
1961	-	-	-	-	-
<u>3. Union of South Africa</u>					
1956	-	-	-	-	-
1957	8,630	-	8,630	432	5.0
1958	581,140	-	581,140	29,057	5.0
1959	478,180	-	478,180	23,913	5.0
1960	371,942	-	371,942	21,005	5.6
1961	100,553	-	100,553	5,028	5.0
<u>4. Sweden</u>					
1956	567,899	-	567,899	56,790	10.0
1957	485,002	-	485,002	39,598	8.2
1958	361,217	174	361,043	27,244	7.5
1959	403,103	-	403,103	30,873	7.7
1960	356,139	531	355,608	28,370	8.0
1961	304,352	-	304,352	24,562	8.1
<u>5. United States</u>					
1956	572,001	-	572,001	57,299	10.0
1957	524,891	1,618	523,273	41,273	7.9
1958	296,456	502	295,954	22,503	7.6
1959	341,277	4,790	336,487	32,031	9.5
1960	519,741	1,465	518,276	48,840	9.4
1961	145,579	1,143	144,436	23,323	16.1

(a) Not available separately prior to 1956

Table 13

Imports: Tungsten carbide tips or blanks, s.c. 6259

Tariff items Ex 410 1, Ex 427(1), 711 and Ex 711

<u>Year</u> ^(a)	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1956	309,041	4,298	304,743	30,361	10.0
1957	144,002	1,140	142,862	11,314	7.9
1958	79,495	4,721	74,774	6,376	8.5
1959	142,919	5,511	137,408	21,586	15.7
1960	196,034	668	195,366	30,797	15.8
1961	284,491	818	283,673	38,489	13.6
<u>2. United Kingdom</u>					
1956	3,506	-	3,506	175	5.0
1957	2,888	-	2,888	144	5.0
1958	971	-	971	49	5.0
1959	2,237	-	2,237	223	10.0
1960	755	-	755	116	15.4
1961	268	-	268	14	5.2
<u>3. Sweden</u>					
1956	22,466	-	22,466	2,258	10.1
1957	48,737	308	48,429	3,833	7.9
1958	37,483	481	37,002	2,956	8.0
1959	50,228	3,377	46,851	8,553	18.3
1960	37,493	325	37,168	7,433	20.0
1961	43,589	58	43,531	8,579	19.7
<u>4. United States</u>					
1956	282,668	4,298	278,370	27,888	10.0
1957	90,279	832	89,447	7,179	8.0
1958	38,911	4,240	34,671	3,212	9.3
1959	89,774	2,134	87,640	12,672	14.5
1960	157,057	343	156,714	23,100	14.7
1961	121,706	760	120,946	23,898	19.8

^(a) Included in s.c. 6251 prior to 1956

Table 14

Imports: Diamond drills and core drills, not including motive power, and electrically operated rotary coal drills, and coal cutting machines, n.o.p., and integral parts of the foregoing, for use exclusively in mining operations, s.c. 5470

Tariff items 410m(1), 410m(2) and 410n

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	104,203	40,366	63,837	6,384	10.0
1947	374,791	42,052	332,739	33,274	10.0
1948	566,576	304,904	261,672	26,167	10.0
1949	514,387	348,373	166,014	16,601	10.0
1950	462,038	297,786	164,252	16,425	10.0
1951	556,048	398,665	157,383	15,738	10.0
1952	669,040	372,984	296,056	29,607	10.0
1953	564,312	385,766	178,546	17,854	10.0
1954	569,227	464,899	104,328	10,433	10.0
1955	522,320	404,358	117,962	11,796	10.0
1956	920,980	790,535	130,445	13,045	10.0
1957	1,130,838	1,041,486	89,352	8,935	10.0
1958	605,219	548,768	56,451	5,645	10.0
1959	446,826	382,725	64,101	6,425	10.0
1960	621,058	538,791	82,267	8,227	10.0
1961	788,968	636,446	152,522	15,296	10.0
<u>2. United Kingdom</u>					
1939	37,835	37,835	-	-	-
1947	31,106	31,106	-	-	-
1948	80,312	80,312	-	-	-
1949	100,683	100,683	-	-	-
1950	93,702	93,702	-	-	-
1951	116,477	116,477	-	-	-
1952	134,062	134,062	-	-	-
1953	205,807	205,807	-	-	-
1954	341,314	341,314	-	-	-
1955	297,302	297,302	-	-	-
1956	544,886	544,886	-	-	-
1957	726,192	726,192	-	-	-
1958	414,294	414,294	-	-	-
1959	159,192	159,192	-	-	-
1960	320,220	320,062	158	16	10.0
1961	389,258	388,941	317	32	10.1

Table 14
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. United States</u>					
1939	63,485	2,495	60,990	6,099	10.0
1947	343,685	10,946	332,739	33,274	10.0
1948	486,037	224,365	261,672	26,167	10.0
1949	413,704	247,690	166,014	16,601	10.0
1950	366,091	201,839	164,252	16,425	10.0
1951	439,186	281,803	157,383	15,738	10.0
1952	534,978	238,922	296,056	29,607	10.0
1953	341,088	179,959	161,129	16,112	10.0
1954	227,913	123,585	104,328	10,433	10.0
1955	223,396	106,134	117,262	11,726	10.0
1956	370,936	245,649	125,287	12,529	10.0
1957	398,383	313,098	85,285	8,528	10.0
1958	190,925	134,474	56,451	5,645	10.0
1959	287,146	223,533	63,613	6,377	10.0
1960	282,241	200,132	82,109	8,211	10.0
1961	356,570	206,464	150,106	15,054	10.0

Table 15

Imports: Coal-heading machines; electric or magnetic machines for concentrating or separating iron ores; automatic scales for use with conveyors and parts of all the foregoing, for use exclusively in mining or metallurgical operations, s.c. 5466

Tariff item 4100(i)

<u>Year</u>	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>United States</u> \$
1939	15,225	2,982	12,243
1947	6,245	1,265	4,980
1948	12,322	-	12,322
1949	13,568	2,254	11,314
1950	7,833	401	7,432
1951	14,329	-	14,329
1952	37,712	2,832	34,880
1953	45,948	1,809	44,139
1954	63,104	4,138	58,966
1955	165,737	-	147,135
1956	245,612	-	233,441
1957	462,769	-	442,769
1958	105,557	-	105,557
1959	236,351	-	233,183
1960	155,090	-	140,403
1961	284,565	3,391	262,209

Table 16

Imports: Chock release apparatus, for use in coal mines to facilitate the safe removal of chocks forming the roof support, s.c. 5465

Tariff item 4100(ii)

<u>Year</u>	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>United States</u> \$
1939	-	-	-
1947	-	-	-
1948	-	-	-
1949	121	121	-
1950	-	-	-
1951	-	-	-
1952	41,345	25,649	15,696
1953	14,324	13,552	772
1954	22,957	21,333	1,624
1955	28,728	28,728	-
1956	37,184	37,184	-
1957	31,371	31,371	-
1958	21,508	21,508	-
1959	12,506	12,506	-
1960	12,185	12,185	-
1961	482	482	-

Table 17

Imports: Sundry articles of metal as follows, for use exclusively in metallurgical operations, viz.:— furnaces for the smelting of ores; converting apparatus for metallurgical processes in metals; machinery for the extraction of precious metals by the chlorination or cyanide processes, not to include pumps, vacuum pumps or compressors; blast furnace blowing engines for the production of pig iron, and integral parts of all the foregoing, s.c. 5469

Tariff item 410p

<u>Year</u> ^(a)	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>Germany</u> ^(b) \$	<u>United States</u> \$
1939	590,968	220	-	588,979
1947	292,086	-	-	292,086
1948	583,950	-	-	583,950
1949	1,510,330	-	-	1,510,330
1950	256,710	-	-	256,710
1951	818,631	1,984	-	816,647
1952	3,237,589	287	-	3,237,302
1953	4,615,921	197,705	-	4,417,529
1954	3,730,527	6,810	296,033	3,417,135
1955	2,979,675	167,756	245,718	2,566,201
1956	5,113,744	409,359	594,821	4,083,725
1957	10,118,582	3,520,408	12,177	6,465,219
1958	8,339,859	3,977,321	481,283	3,537,152
1959	2,675,150	688,098	672,700	1,231,356
1960	6,114,168	354,190	390,176	5,050,832
1961	4,894,868	347,813	473,500	3,521,062

(a) For an analysis of imports under this item, see Appendix III

(b) Beginning in 1952, West Germany only

Table 18

Imports: Pumps and vacuum pumps, and complete parts thereof, for use exclusively in the extraction of precious metals by the chlorination or cyanide processes, s.c. 5480

Tariff item 410q

<u>Year</u>	<u>Total Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>				
1939	21,032	21,032	3,681	17.5
1947	4,486	4,486	785	17.5
1948	6,356	6,356	1,037	16.3
1949	8,293	8,293	1,244	15.0
1950	5,735	5,735	860	15.0
1951	7,648	7,648	1,147	15.0
1952	6,531	6,531	980	15.0
1953	78,713	78,713	11,807	15.0
1954	46,696	46,506	6,976	15.0
1955	94,403	94,403	14,160	15.0
1956	533,692	533,692	80,053	15.0
1957	841,564	841,564	126,234	15.0
1958	344,885	344,627	51,694	15.0
1959	161,156	160,859	24,130	15.0
1960	255,146	252,078	37,843	15.0
1961	229,583	216,045	32,362	15.0
<u>2. United States</u>				
1939	21,032	21,032	3,681	17.5
1947	4,486	4,486	785	17.5
1948	6,356	6,356	1,037	16.3
1949	8,293	8,293	1,244	15.0
1950	5,735	5,735	860	15.0
1951	7,648	7,648	1,147	15.0
1952	6,531	6,531	980	15.0
1953	78,713	78,713	11,807	15.0
1954	46,696	46,506	6,976	15.0
1955	94,403	94,403	14,160	15.0
1956	533,692	533,692	80,053	15.0
1957	841,564	841,564	126,234	15.0
1958	344,885	344,627	51,694	15.0
1959	161,156	160,859	24,130	15.0
1960	252,417	249,349	37,434	15.0
1961	229,583	216,045	32,362	15.0

Table 19

Imports: Power-driven reciprocating pumps, and complete parts thereof, designed for normal working heads of 400 feet and over, for use exclusively underground, in mines, s.c. 5479

Tariff item 410r

<u>Year</u>	<u>Total Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>				
1939	-	-	-	-
1947	-	-	-	-
1948	-	-	-	-
1949	-	-	-	-
1950	570	570	143	25.1
1951	1,895	1,895	474	25.0
1952	390	390	98	25.1
1953	1,614	1,614	404	25.0
1954	71	71	18	25.4
1955	853	853	213	25.0
1956	2,662	2,662	666	25.0
1957(a)	1,010	1,010	252	25.0
<u>2. United States</u>				
1939	-	-	-	-
1947	-	-	-	-
1948	-	-	-	-
1949	-	-	-	-
1950	570	570	143	25.1
1951	1,895	1,895	474	25.0
1952	390	390	98	25.1
1953	1,614	1,614	404	25.0
1954	71	71	18	25.4
1955	853	853	213	25.0
1956	2,662	2,662	666	25.0
1957	1,010	1,010	252	25.0

(a) Included in s.c. 5558 after 1957

Table 20

Imports: Amalgam safes; automatic ore samplers; automatic feeders; retorts; mercury pumps; pyrometers; bullion furnaces; non-metallic heating elements; amalgam cleaners, and integral parts of all the foregoing, for use exclusively in mining or metallurgical operations, s.c. 5468

Tariff item 410s

<u>Year</u>	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>United States</u> \$
1939(a)	91,808	213	90,845
1947	184,718	-	184,718
1948	218,263	-	218,263
1949	335,837	854	334,983
1950	361,439	1,852	359,587
1951	526,991	1,537	525,454
1952	537,141	1,700	535,441
1953	554,200	16,641	537,559
1954	402,574	7,189	395,385
1955	580,444	3,260	576,816
1956	719,063	6,009	711,974
1957	815,990	19,685	795,953
1958	447,065	3,622	441,236
1959	453,439	31,270	418,631
1960	750,668	36,127	711,418
1961	544,775	35,758	448,480

(a) In 1939, s.c. 5468 was: Amalgam safes; automatic ore samplers; automatic feeders; retorts; mercury pumps; pyrometers; bullion furnaces; amalgam cleaners, and integral parts of all the foregoing, for use exclusively in mining or metallurgical operations.

Table 21

Imports: Blowers of iron or steel, for use in the smelting of ores, or in reduction, separation or refining of metals, ores or minerals; rotary kilns, revolving roasters and furnaces of metal, for roasting ore, mineral rock or clay; furnace slag trucks and slag pots, and parts of all the foregoing, s.c. 5462

Tariff items 410t(1) and 410t(2)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	190,395	75,744	114,651	20,064	17.5
1947	201,606	2,975	198,631	34,729	17.5
1948	100,748	57,200	43,548	7,621	17.5
1949	203,585	137,686	65,899	11,533	17.5
1950	137,888	102,511	35,377	6,187	17.5
1951	304,921	73,905	231,016	40,428	17.5
1952	483,965	100,902	383,063	66,731	17.4
1953	691,966	306,196	385,770	67,510	17.5
1954	460,842	106,173	354,669	62,054	17.5
1955	474,443	267,676	206,767	36,167	17.5
1956	751,222	102,338	648,884	113,496	17.5
1957	1,528,368	288,553	1,239,815	216,779	17.5
1958	261,713	114,674	147,039	25,731	17.5
1959	557,587	130,757	426,830	76,865	18.0
1960	499,100	227,363	271,737	52,962	19.5
1961	366,720	95,424	271,296	47,459	17.5

2. United Kingdom

1939	-	-	-	-	-
1947	281	-	281	18	6.4
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	80	-	80	10	12.5
1951	2,515	2,515	-	-	-
1952	6,096	-	6,096	762	12.5
1953	545	545	-	-	-
1954	1,685	1,408	277	35	12.6
1955	9,457	9,127	330	41	12.4
1956	2,636	1,531	1,105	138	12.5
1957	3,775	-	3,775	472	12.5
1958	-	-	-	-	-
1959	-	-	-	-	-
1960	-	-	-	-	-
1961	-	-	-	-	-

Table 21
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. Germany(a)</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	101,917	-	101,917	17,835	17.5
1952	1,358	-	1,358	237	17.5
1953	-	-	-	-	-
1954	21,052	-	21,052	3,684	17.5
1955	1,381	-	1,381	242	17.5
1956	74	-	74	13	17.6
1957	3,657	-	3,657	640	17.5
1958	6,681	-	6,681	1,169	17.5
1959	145,163	102,249	42,914	9,656	22.5
1960	-	-	-	-	-
1961	3,144	-	3,144	550	17.5
<u>4. United States</u>					
1939	188,323	75,744	112,579	19,701	17.5
1947	201,325	2,975	198,350	34,711	17.5
1948	95,665	52,117	43,548	7,621	17.5
1949	196,658	137,389	59,269	10,373	17.5
1950	137,808	102,511	35,297	6,177	17.5
1951	200,489	71,390	129,099	22,593	17.5
1952	461,107	85,498	375,609	65,732	17.5
1953	515,233	129,463	385,770	67,510	17.5
1954	387,633	54,293	333,340	58,335	17.5
1955	343,151	138,095	205,056	35,884	17.5
1956	742,919	95,214	647,705	113,345	17.5
1957	1,022,915	270,414	752,501	131,688	17.5
1958	205,782	113,734	92,048	16,108	17.5
1959	410,263	26,347	383,916	67,210	17.5
1960	453,654	192,996	260,658	51,023	19.6
1961	356,997	88,845	268,152	46,909	17.5

(a) Beginning in 1952, West Germany only

Table 22

Imports: Buddles, vanners, slime or concentrating tables and parts thereof, for use in mining and metallurgical operations, s.c. 5463

Tariff item 410v

<u>Year</u>	<u>Total(a)</u> \$
1939	1,694
1947	6,122
1948	5,097
1949	4,215
1950	5,545
1951	14,978
1952	39,007
1953	11,846
1954	4,581
1955	21,027
1956	4,494
1957	24,126
1958	49,711
1959	1,499,031
1960	634,767
1961	2,925,393

(a) All imports were from the United States

Table 23

Imports: Machinery, n.o.p., for the concentration or separation of ores, metals or minerals, viz.:— flotation machines, flotation cells, oil feeders and reagent feeders for flotation machines and flotation cells, pumps, vibrating and impact screens, jigs, magnetic separators, magnetic pulleys and filters, for use in the concentration or separation of ores, metals or minerals, and integral parts of all the foregoing, s.c. 5475

Tariff item 410w

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>					
1939	89,549	—	89,549	15,679	17.5
1947	213,097	—	213,097	37,257	17.5
1948	232,190	—	232,190	27,686	11.9
1949	326,219	—	326,219	24,458	7.5
1950	325,315	265	325,050	24,338	7.5
1951	510,021	—	510,021	38,216	7.5
1952	624,632	—	624,632	46,831	7.5
1953	520,688	4,103	516,585	38,737	7.5
1954	794,859	—	794,859	59,563	7.5
1955	1,260,061	74	1,259,987	94,488	7.5
1956	1,847,062	3,171	1,843,891	138,181	7.5
1957	2,243,202	6,233	2,236,969	167,690	7.5
1958	1,307,936	—	1,307,936	97,564	7.5
1959	976,689	147	976,542	71,652	7.3
1960	1,082,289	6,277	1,076,012	79,293	7.4
1961	1,385,427	42,226	1,343,201	98,361	7.3
<u>2. United Kingdom</u>					
1939	—	—	—	—	—
1947	489	—	489	37	7.6
1948	1,143	—	1,143	57	5.0
1949	320	—	320	16	5.0
1950	1,651	—	1,651	83	5.0
1951	1,495	—	1,495	75	5.0
1952	592	—	592	29	4.9
1953	291	—	291	15	5.2
1954	2,083	—	2,083	104	5.0
1955	233	—	233	12	5.2
1956	4,529	—	4,529	226	5.0
1957	3,329	—	3,329	166	5.0
1958	21,201	—	21,201	1,060	5.0
1959	63,658	—	63,658	3,183	5.0
1960	68,067	—	68,067	3,432	5.0
1961	133,407	—	133,407	7,616	5.7

Table 23
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Free Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. United States</u>					
1939	89,549	-	89,549	15,679	17.5
1947	212,608	-	212,608	37,220	17.5
1948	228,789	-	228,789	27,516	12.0
1949	324,190	-	324,190	24,314	7.5
1950	323,664	265	323,399	24,255	7.5
1951	508,526	-	508,526	38,141	7.5
1952	624,040	-	624,040	46,802	7.5
1953	517,206	4,103	513,103	38,483	7.5
1954	781,029	-	781,029	58,578	7.5
1955	1,254,798	74	1,254,724	94,099	7.5
1956	1,841,497	3,171	1,838,326	137,877	7.5
1957	2,238,445	6,233	2,232,212	167,416	7.5
1958	1,279,908	-	1,279,908	95,992	7.5
1959	870,612	147	870,465	65,288	7.5
1960	1,010,542	6,277	1,004,265	75,586	7.5
1961	1,239,951	42,226	1,197,725	89,838	7.5

Table 24

Imports: Machinery, furnaces and appliances of a class or kind not made in Canada, and integral parts thereof, for use in the refining of metals, and for the production of anodes, cathodes, blocks, slabs, pigs or ingots, in such refining processes, s.c. 5476

Tariff item 410x

<u>Year</u>	<u>Total</u> \$	<u>United Kingdom</u> \$	<u>Switzerland</u> \$	<u>United States</u> \$
1939	19,338	50	-	19,081
1947	21,018	-	-	21,018
1948	33,358	-	-	33,358
1949	147,861	-	-	147,861
1950	27,783	-	-	27,783
1951	33,827	-	-	33,827
1952	130,519	-	-	130,519
1953	129,643	-	-	73,794
1954	193,107	7,332	-	185,775
1955	125,974	-	1,753	124,221
1956	122,556	-	-	122,556
1957	348,230	54,092	155,652	134,812
1958	419,991	144,072	49,363	221,392
1959	319,879	51,321	10,414	128,663
1960	618,949	10,699	2,269	397,912
1961	629,138	4,586	2,795	587,264

Table 25

Imports: Machinery and apparatus, n.o.p., and complete parts thereof, for the recovery of solid or liquid particles from flue or other waste gasses at metallurgical or industrial plants, not to include motive power, tanks for gas, nor pipes and valves 10½ inches or less in diameter, s.c. 5528

Tariff item 410z

<u>Year</u>	<u>Total Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>1. Total</u>				
1939	67,909	67,909	6,655	9.8
1947	117,009	117,009	11,648	10.0
1948	120,951	120,951	11,916	9.9
1949	216,974	216,974	21,554	9.9
1950	163,997	163,997	15,940	9.7
1951	348,425	348,425	34,256	9.8
1952	401,596	401,596	40,160	10.0
1953	280,918	280,918	28,087	10.0
1954	163,793	613,793	61,379	10.0
1955	673,567	673,567	67,357	10.0
1956	1,356,625	1,346,117	134,630	10.0
1957	847,436	847,436	84,713	10.0
1958	335,427	314,542	31,382	10.0
1959	484,136	484,136	46,772	9.7
1960	623,523	610,688	58,029	9.5
1961	508,304	461,352	45,141	9.8
<u>2. United Kingdom</u>				
1939	2,727	2,727	136	5.0
1947	833	833	21	2.5
1948	3,574	3,574	178	5.0
1949	2,993	2,993	150	5.0
1950	9,212	9,212	461	5.0
1951	11,735	11,735	587	5.0
1952	-	-	-	-
1953	89	89	4	4.5
1954	-	-	-	-
1955	-	-	-	-
1956	-	-	-	-
1957	604	604	30	5.0
1958	1,451	1,451	73	5.0
1959	32,835	32,835	1,642	5.0
1960	60,927	60,927	3,045	5.0
1961	21,055	21,055	1,056	5.0

Table 25
(Cont'd)

<u>Year</u>	<u>Total Imports</u> \$	<u>Dutiable Imports</u> \$	<u>Duty Collected</u> \$	<u>Duty as per cent of Dutiable Value</u>
<u>3. United States</u>				
1939	65,182	65,182	6,519	10.0
1947	116,176	116,176	11,627	10.0
1948	117,377	117,377	11,738	10.0
1949	213,981	213,981	21,404	10.0
1950	154,785	154,785	15,479	10.0
1951	336,690	336,690	33,669	10.0
1952	401,596	401,596	40,160	10.0
1953	280,829	280,829	28,083	10.0
1954	613,793	613,793	61,379	10.0
1955	665,773	665,773	66,577	10.0
1956	1,346,117	1,346,117	134,630	10.0
1957	846,526	846,526	84,652	10.0
1958	333,976	313,091	31,309	10.0
1959	451,301	451,301	45,130	10.0
1960	551,831	549,761	54,984	10.0
1961	446,368	440,297	44,085	10.0

APPENDIX II

Analysis of Imports Under Tariff Item 410a (s.c. 5471)

	<u>1959</u> (dollars)	<u>1960</u> (dollars)	<u>1961</u> (dollars)
Bull grader	28,328	-	-
Car, shuttle and parts	718,030	211,903	133,211
Chain assemblies	57,649	8,010	10,860
Conveyors and parts	331,064	378,374	261,628
Cranes and parts	-	9,418	8,721
Dipper trip unit and parts	15,728	29,736	17,309
Dragline bucket and parts	1,004,881	239,000	1,773,760
Dumptors and parts	-	10,521	-
Engines, air	1,454	1,339	12,104
Earth moving machines and parts	65,163	113,290	-
Excavators and parts	269,788	647,620	198,432
Hoists, slusher	13,140	-	-
Idlers, lumber roller	24,539	6,388	6,430
Loaders and parts	463,642	737,738	731,928
Motor, driving, flame proof enclosed	12,032	2,005	2,058
Motors and parts	-	32,642	27,975
Muckers	-	3,820	1,089
Payhaulers, Scoopmobiles and parts	69,728	10,130	34,695
Rocker shovels and parts	-	270,800	242,185
Roller chain	6,720	36,947	21,373
Roller limb	14,323	22,825	1,122
Rope	11,839	7,051	-
Shovels, power and parts	4,319,165	1,924,022	2,273,355
Soot blower material	-	33,582	-
Tractors and parts	88,143	44,590	-
Trucks and parts	5,410,672	3,776,949	3,224,274
Wagons, rear dump	129,172	-	-
Other	<u>1,712,524</u>	<u>1,540,151</u>	<u>1,482,856</u>
Total	14,767,724	10,098,851	10,465,365

Source: Adapted from data obtained from the Dominion Bureau of Statistics.

APPENDIX III

Analysis of Imports Under Tariff Item 410p (s.c. 5469)

	<u>1959</u> (dollars)	<u>1960</u> (dollars)	<u>1961</u> (dollars)
Batteries, tractor	37,177	-	183,594
Blowers and parts	-	44,006	-
Briquetting machinery	23,580	7,772	4,647
Buggies, ingots and parts	6,924	1,486	-
Cars, railway and parts	1,524	8,319	13,688
Cars, slag and parts	10,405	-	-
Castings	9,132	32,127	5,569
Chains, roller	1,209	2,759	13,504
Channels, water cooled	7,231	30,110	-
Charging apparatus	10,499	394,268	2,646
Control equipment and instruments	32,611	90,538	24,878
Concentrators, ore and parts	-	61,007	-
Converters and parts	10,836	236,342	156,806
Conveyors and parts	17,479	7,276	184,412
Cranes and parts	73,024	2,001,539	61,149
Crust breaking equipment	66,807	40,326	23,320
Dust collecting equipment	-	30,896	1,049
Electrode assemblies, holders and frame parts	6,295	92,758	-
Filters and parts	13,043	142,167	68,867
Gears and parts	11,080	4,027	12,981
Girders, system and parts	45,869	25,258	-
Heat exchangers and column package assembly	-	18,247	478,611
Industrial furnaces and parts	1,423,970	1,331,439	1,265,637
Jacks and parts	41,402	51,791	10,258
Kiln and parts	2,193	12,999	-
Mixers and parts	1,534	91,066	39,707
Oxygen plant, rolling mill, autoclave and hydraulic dolomite machine	-	228,227	41,133
Pneumatic tool	-	18,490	-
Pots and parts	88,640	27,865	6,103
Presses and parts	14,838	135,312	-
Scrubber equipment	2,555	47,191	39,291
Shell cooler, autometer and catalytic filter element	-	78,184	-
Tractors and fork lift trucks	25,211	50,752	50,744
Vacuum treatment units, hydrolysis reactors, regenerator assemblies, motor generator sets and rotary dryers	-	-	253,042
Other	<u>690,082</u>	<u>769,624</u>	<u>1,953,232</u>
Total	2,675,150	6,114,168	4,894,868

Source: Adapted from data obtained from the Dominion Bureau of Statistics.

General Statistical Data

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Table 1

Principal Statistics of the Mineral Industries, (a) 1960

Industry	Establi- ments (number)	Employees (number)	Salaries & Wages (\$ mil.)	Cost of Fuel & Electricity (\$ mil.)	Cost of Processing Supplies & Containers (\$ mil.)	Gross Value of Production (\$ mil.)	Net Value Added by Processing (\$ mil.)
<u>Mining Industries</u>							
Metal Mining	3,713	97,571	454	67	206	1,875	1,471
Non-Metal Mining	678	61,882	308	38	129	1,004	706
	205	11,206	50	10	22	182	149
<u>Fuels:</u>							
Coal	129	11,587	39	4	12	75	59
Petroleum and Natural Gas	637	5,371	28	6	11	471	453
Natural Gas Processing	30	669	4	1	26	46	19
Stone, Sand and Gravel	2,034	6,856	26	7	6	97	85
<u>Manufacturing Industries</u>							
Iron and Steel Mills	229	74,214	383	117	1,314	2,424	1,012
Smelting and Refining	48	36,472	194	29	376	782	394
Clay Products	23	29,708	154	63	924	1,495	508
Cement	113	3,778	14	6	1	38	32
Lime	20	3,306	17	16	11	97	70
	25	950	4	3	1	12	8
Grand Total	3,942	171,785	836	184	1,520	(b)	2,482

(a) Including petroleum and natural gas.

(b) Not available without duplication.

Source: Dominion Bureau of Statistics.

Table 2

Employment in the Mineral Industries, (a) by Years
(thousands)

<u>Industry</u>	<u>1939</u>	<u>1952</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960(b)</u>
<u>Mining Industries</u>											
Metal Mining	91	102	97	95	96	102	107	103	103	103	98
Non-Metal Mining	46	55	52	52	53	58	63	62	62	64	62
Fuels:	6	11	10	10	11	12	12	11	11	11	11
Coal											
Petroleum and Natural Gas	26	22	20	18	17	16	15	13	13	11	12
Stone, Sand Gravel	4	6	7	7	7	8	8	7	7	7	6
	9	8	8	9	8	9	10	10	10	10	7
<u>Manufacturing Industries</u>											
Primary Iron and Steel	31	67	68	63	70	76	75	68	68	72	74
Non-Ferrous Metal Smelting and Refining	14	35	35	29	33	36	36	30	30	35	36(c)
Salt, Clay Products, Cement and Lime	12	25	25	26	29	31	30	27	27	28	30
	5	7	8	8	9	9	9	9	9	10	8(d)
<u>Total</u>	122	169	165	158	166	179	182	170	177	172	

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(a) Including petroleum and natural gas.

(b) Due to extensive changes in classification the figures for 1960 are not strictly comparable with those for earlier years.

(c) Metal smelting and refining.

(d) Excludes salt, which was classified with non-metal mining in 1960.

Source: Dominion Bureau of Statistics.

Table 3

Mineral Production by Kinds
(millions of dollars)

	1939	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962(a)
<u>Metallics</u>												
Copper	344	728	709	802	1,008	1,148	1,160	1,130	1,371	1,407	1,387	1,480
Gold	61	147	151	176	240	293	207	174	233	265	255	283
Iron Ore	184	153	140	149	157	151	149	155	151	157	159	155
Lead	*	34	44	50	110	160	167	126	193	175	188	265
Nickel	12	55	50	58	58	59	51	42	40	44	47	38
Silver	51	151	160	180	216	222	259	194	257	296	351	385
Uranium	9	21	24	26	25	25	25	27	28	30	30	35
Zinc	-	..	..	..	..	46	136	280	331	270	196	151
Other	12	130	96	90	118	125	100	93	97	109	105	111
	15	37	44	73	84	67	66	39	41	61	56	57
<u>Non-Metallics</u>												
Asbestos	25	125	126	128	145	160	169	150	178	198	210	216
Gypsum	16	89	86	86	96	99	104	92	107	121	129	132
Salt	2	7	7	7	8	7	8	5	8	9	8	9
Titanium dioxide	2	8	7	8	10	12	14	15	18	19	20	23
Other	-	1	4	4	5	8	10	7	9	13	17	8
	5	20	22	23	26	34	33	31	36	36	36	44
<u>Fuels</u>												
Coal	71	264	314	353	414	519	565	511	536	566(b)	653(b)	797(b)
Natural Gas	48	111	102	97	94	95	90	80	74	75	70	69
Petroleum	12	10	11	12	15	17	21	32	40	52	68	98
	10	143	201	244	306	407	454	399	422	423	488	584
<u>Structural Materials</u>												
Clay Products	35	169	187	205	228	259	297	309	325	323	331	350
Cement	5	25	30	32	35	38	36	42	43	38	37	38
Lime	9	48	59	59	66	75	93	96	95	93	104	114
Sand, gravel and stone	4	14	14	15	16	16	17	19	21	19	19	18
	17	82	84	99	112	131	151	152	166	172	171	181
<u>Total</u>	475	1,285	1,336	1,488	1,795	2,084	2,190	2,101	2,409	2,493	2,582	2,843

(a) Preliminary.

(b) Includes natural gas by-products.

Source: Dominion Bureau of Statistics.

Table 4

Exports of Minerals Other than Petroleum and Natural Gas
(millions of dollars)

	<u>1939</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
<u>Iron and Its Products</u>											
Raw materials	63	407	358	301	399	459	519	432	563	605	595
Partially manufactured	..	22	31	40	100	144	152	108	158	155	..
Fully manufactured	6	60	63	34	68	72	89	43	51	73	..
	57	325	265	227	231	242	277	281	354	377	..
<u>Non-Ferrous Metals and Products</u>											
Raw Materials	183	707	682	717	853	959	991	1,027	1,115	1,214	1,210
Partially manufactured	30	136	154	157	186	222	303	425	460	420	..
Fully manufactured	139	474	465	515	614	688	641	557	598	715	..
	13	97	63	44	53	50	47	44	57	79	..
<u>Non-Metallic Minerals and Products</u>											
Raw Materials	28	135	141	137	166	177	190	156	197	219	228
Partially manufactured	20	44	45	45	56	59	56	52	69	69	..
Fully manufactured	5	75	85	82	91	97	108	84	104	118	..
	3	16	11	11	19	21	26	20	24	32	..
<u>Total</u>											
Raw materials	274	1,248	1,181	1,155	1,418	1,595	1,700	1,615	1,875	2,038	2,033
Partially manufactured	50	202	230	242	342	425	511	585	687	644	..
Fully manufactured	150	609	613	631	773	857	838	684	753	906	..
	73	438	339	281	303	313	350	345	436	488	..

Source: Dominion Bureau of Statistics.

Table 5

Some Leading Mineral Exports
(millions of dollars)

	<u>1939</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
New gold production available for export	184	150	144	155	155	147	144	157	148	162	162
Iron ore	*	22	31	40	100	144	152	108	158	155	136
Aluminum and manufactures of	26	162	178	185	213	236	230	224	232	269	251
Copper and manufactures of	53	119	125	135	175	205	169	142	166	223	202
Lead and manufactures of	10	50	38	41	37	35	29	26	26	26	28
Nickel and manufactures of	58	151	163	182	215	223	248	213	227	251	338
Zinc and manufactures of	10	97	58	58	71	74	65	56	55	64	59
Uranium ores and concentrates	..	..	..	..	..	46	128	277	312	264	193
Asbestos and manufactures of	16	88	85	84	98	104	109	92	111	121	132

Source: Dominion Bureau of Statistics.

Table 6

Capital and Repair Expenditures on Machinery and Equipment
in the Mining, Smelting and Refining Industries
(millions of dollars)

<u>Year</u>	<u>Mining(a)</u>	<u>Non-Ferrous Metal Smelting and Refining</u>	<u>Primary Iron and Steel</u>	<u>Total</u>
1948	42	25	28	95
1949	62	25	25	112
1950	74	29	23	126
1951	91	44	49	184
1952	100	57	84	241
1953	119	63	77	259
1954	112	61	59	232
1955	104	77	71	252
1956	179	89	110	378
1957	218	108	119	445
1958	148	83	88	319
1959	138	67	133	338
1960	146	100	171	417
1961(b)	132	93	122	347
1962(c)	176	120	169	465

(a) Excludes petroleum and natural gas extraction.

(b) Preliminary.

(c) Intentions.

Source: Dominion Bureau of Statistics.

Table 7

Capital and Repair Expenditures in the Mining Industry
(Excluding Petroleum and Natural Gas Extraction)
(millions of dollars)

Year	Capital Expenditures			Repair & Maintenance			Totals		
	Construction	Equipment & Machinery	Sub-Total	Construction	Equipment & Machinery	Sub-Total	Construction	Equipment & Machinery	Total
1948	14	25	39	4	24	27	25	42	67
1949	22	29	51	6	34	40	29	62	90
1950	24	37	61	5	40	45	31	74	105
1951	40	51	92	10	39	49	50	91	141
1952	57	55	112	10	46	55	67	100	168
1953	74	71	145	12	48	60	87	119	206
1954	81	71	152	13	42	54	93	112	206
1955	74	61	135	12	44	56	87	104	191
1956	165	125	290	14	54	68	178	179	358
1957	212	156	368	15	62	77	227	218	445
1958	82	79	160	16	70	86	98	148	247
1959	83	67	150	18	71	89	101	138	239
1960	103	68	171	18	78	96	121	146	268
1961(a)	116	57	173	18	75	93	134	132	267
1962(b)	135	98	233	18	78	96	153	176	328

(a) Preliminary.
(b) Intentions.

Source: Dominion Bureau of Statistics.

Table 8
Capital and Repair Expenditures in
Non-Ferrous Metal Smelting and Refining
(millions of dollars)

Year	Capital Expenditure			Repair & Maintenance			Totals		
	Construction	Equipment	Sub-Total	Construction	Equipment	Sub-Total	Construction	Equipment	Total
1948	3.5	7.8	11.3	4.3	17.4	21.7	7.8	25.2	33.0
1949	7.0	7.5	14.4	3.7	17.5	21.1	10.6	24.9	35.5
1950	6.7	9.4	16.2	2.8	19.7	22.5	9.6	29.1	38.7
1951	20.6	19.8	40.4	5.3	24.0	29.4	25.9	43.9	69.8
1952	32.6	29.7	62.3	7.0	26.9	33.9	39.6	56.5	96.1
1953	33.4	33.7	67.1	7.7	29.4	37.1	41.2	63.1	104.3
1954	19.5	27.7	47.2	7.3	33.3	40.7	26.9	61.0	87.9
1955	34.3	40.5	74.8	6.9	36.3	43.3	41.2	76.8	118.0
1956	53.7	45.7	99.3	10.2	43.6	53.7	63.8	89.2	153.1
1957	63.6	61.7	125.3	7.4	46.7	54.1	71.0	108.4	179.4
1958	42.0	41.4	83.4	8.4	41.6	50.1	50.5	83.1	133.5
1959	25.1	23.5	48.6	10.6	43.3	53.9	35.7	66.8	102.5
1960(a)	23.7	41.1	64.8	12.7	58.6	71.3	36.4	99.7	136.1
1961(b)	18.2	32.1	50.3	12.0	60.9	72.9	30.2	93.0	123.3
1962(c)	39.8	55.9	95.7	12.3	63.6	75.9	52.1	119.5	171.7

(a) After 1959, Smelting and Refining and Other Primary Metal.
 (b) Preliminary.
 (c) Intentions.

Source: Dominion Bureau of Statistics.

Table 9

Capital and Repair Expenditures in the
Primary Iron and Steel Industry
(millions of dollars)

Year	<u>Capital Expenditure</u>			<u>Repair & Maintenance</u>			<u>Totals</u>		
	<u>Construction</u>	<u>Equipment</u>	<u>Sub-Total</u>	<u>Construction</u>	<u>Equipment</u>	<u>Sub-Total</u>	<u>Construction</u>	<u>Equipment</u>	<u>Total</u>
1948	7.3	12.0	19.3	5.1	16.3	21.4	12.4	28.3	40.6
1949	2.4	9.2	11.6	5.4	15.4	20.8	7.8	24.6	32.4
1950	1.7	5.2	6.9	5.9	18.0	23.9	7.6	23.2	30.8
1951	28.9	21.4	50.3	5.5	27.8	33.3	34.4	49.2	83.6
1952	20.5	52.4	72.9	6.3	31.4	37.7	26.8	83.8	110.7
1953	11.9	38.0	49.9	7.2	38.6	45.8	19.1	76.6	95.6
1954	6.2	27.3	33.5	5.2	31.6	36.8	11.4	58.9	70.3
1955	6.6	27.9	34.5	5.2	43.0	48.2	11.8	70.9	82.7
1956	7.6	54.1	61.7	6.5	56.2	62.7	14.1	110.3	124.4
1957	14.4	56.6	71.0	7.0	62.2	69.2	21.4	118.8	140.3
1958	15.4	40.4	55.8	6.5	47.2	53.7	21.9	87.6	109.5
1959	15.0	59.7	74.7	6.5	73.3	79.8	21.5	133.0	154.5
1960	23.7	91.0	114.7	6.5	79.9	86.4	30.2	170.9	201.2
1961(a)	14.4	52.8	67.2	5.2	68.8	74.0	19.6	121.6	141.3
1962(b)	34.9	96.2	131.1	5.3	72.6	77.9	40.2	168.8	209.1

(a) Preliminary.
(b) Intentions.

Source: Dominion Bureau of Statistics.

Table 10

Purchases of Capital Goods, Process Supplies and Specified Services by Canada's Mineral Industries,
Calendar Year 1949

Item	Metal mines, smelters, and refineries (In Canadian dollars - f.o.b. mines or plants)	Fuels (coal, crude petroleum and natural gas)	Structural materials and other non-metals	Total
1. Belting of all kinds, including elevator, conveyor, transmission, etc., and fasteners for same.....	713,037	150,464	236,813	1,100,314
2. Bolts, nuts, rivets, studs, washers, coach, set and machine screws, etc.....	590,489	182,867	90,418	863,774
3. Castings: unfinished iron and steel.....	648,764	101,628	153,927	904,319
4. Unfinished brass castings, brass and copper rods and sheets, babbit and non- ferrous metals of all kinds.....	865,259	55,291	30,461	951,011
5. Cars and mechanical parts for same.....	1,333,519	323,075	34,162	1,690,756
6. Locomotives and mechanical parts for same	1,040,924	260,224	65,660	1,366,808
7. Track materials; rails and fittings, switches, spikes, bolts, etc.....	1,709,894	596,177	54,626	2,360,697
8. Explosives: powder, fuse and detonators..	8,507,834	1,001,553	637,910	10,147,297
9. Rock drills and parts.....	2,222,113	208,351	88,502	2,518,966
10. Oil and gas well drills and parts.....	41,152	977,700	3,993	1,022,845
11. Drill and tool steels, including detachable rock drill bits.....	3,445,447	328,804	58,492	3,832,743
12. Pipe and fittings, plumbing supplies and valves.....	4,713,896	6,721,070	191,586	11,626,552
13. Iron and steel bars, sheets, plates.....	3,026,764	274,500	211,603	3,512,867
14. Structural steel.....	2,876,970	247,974	698,138	3,823,082
15. Wire rope and fittings.....	1,330,710	627,295	103,532	2,061,537

Table 10
(Cont'd)

Item	Metal mines, smelters, and refineries (In Canadian dollars - f.o.b. plants)	Fuels (coal, crude petroleum and natural gas)	Structural materials and other non-metals	Total
16. Diamonds and bort for drilling, including drill cast set bits.....	975,249	23,908	33,605	1,032,762
17. Safety equipment and apparel: safety hats, boots, gloves, goggles, respirators, etc.: miners' lamps and accessories and lamp rentals.....				
18. Fuel: Coal.....	993,671	241,814	102,203	1,337,688
Coke.....	9,499,305	161,069	8,559,589	18,219,963
Charcoal and wood.....	4,436,299	7,526	50,129	4,493,954
19. Fuel oil.....	402,772	41	276,989	679,802
20. Kerosene and gasoline.....	3,902,951	705,152	714,012	5,322,115
21. Lubricants: oil grease and waste.....	608,697	454,968	594,417	1,658,082
22. Lumber and timber of all kinds.....	1,281,300	337,358	309,988	1,928,646
23. Building materials: cement, brick, tile, roofing and building paper, insulating material, building hardware, glass, putty, paints, varnishes and brushes, wood screws, nails, screw hooks and eyes, sand, lime, and miscellaneous supplies.....	9,641,694	2,640,329	327,571	12,609,594
24. Electrical equipment and supplies: motors, batteries, wire and cable, etc.....	4,073,721	1,494,651	1,072,653	6,641,025
25. Electrical recording equipment.....	6,915,196	1,514,077	804,572	9,233,845
26. Crushing, grinding and screening machinery and parts; ball and tube mill liners, roll shells, etc.....	79,745	3,374	37,144	120,263
	3,053,668	101,316	1,715,121	4,870,105

Table 10
(Cont'd)

Item	Metal mines, smelters, and refineries (In Canadian dollars - f.o.b. mines or plants)	Fuels (coal, crude petroleum and natural gas)	Structural materials and other non-metals	Total
27. Filter cloth, rotor covers and ore dressing blankets.....	680,467	62	3,051	683,580
28. Balls and rods for grinding.....	3,162,483	4	527,081	3,689,568
29. Machinery, mill, n.o.p. and parts.....	3,620,345	45,529	1,286,102	4,951,976
30. Machinery, mine, n.o.p. and parts: machine shop, blacksmith shop, carpenter shop and general surface equipment.....				
31. Motor cars and accessories.....	7,331,600			11,552,770
32. Motor trucks and accessories.....	744,002	3,944,474	276,696	1,215,870
33. Tractors, power shovels, bulldozers and parts	1,308,427	343,974	127,894	2,928,015
34. Aeroplanes and accessories.....	1,652,089	811,429	808,159	3,569,067
35. Tools: brooms, picks, shovels, hammers, handles saws, wrenches, machinists' tools, etc....	29,658	951,117	965,861	30,046
36. Welding and cutting equipment and accessories; oxygen, acetylene, welding rods, tips, etc.	932,488	258	130	
37. Rubber goods, suits, boots, hose and accessories, pump valves, launder linings, etc. (not including belts).....	765,391	223,213	87,676	1,243,377
38. Flotation reagents.....		98,456	100,863	964,710
39. Cyanide and cyanide plant chemicals.....	1,113,568	72,998	42,717	1,229,283
40. Acids and chemicals, n.o.p.....	2,430,169	-	1,292	2,431,461
41. Refractories: brick, cement, fireclay, etc.	2,259,392	4,147	2,242	2,265,781
42. Smelter fluxes: fluorspar, limestone, quartz, sand, etc.....	1,607,763	131,152	95,944	1,834,859
43. Hospital equipment and medical supplies....	2,364,242	24,033	452,233	2,840,508
44. Stationery, office equipment and supplies..	1,177,071	58,440	34,802	1,270,313
	347,304	16,943	6,226	370,473
	807,459	430,000	79,772	1,317,231

Table 10
(Cont'd)

Item	Metal mines, smelters and refineries (In Canadian dollars - f.o.b. mines or plants)	Fuels (coal, crude petroleum and natural gas)	Structural materials and other non-metals mines or plants)	Total
45. Survey and drafting equipment and supplies	147,600	98,760	8,841	255,201
46. Miscellaneous materials, n.o.p.: Including all materials NOT OTHERWISE PROVIDED FOR in any other item.....	9,765,443	5,981,954	6,205,222	21,952,619
47. Power, electric.....	10,754,606	1,995,405	2,151,738	14,901,749
48. Freight: Outgoing.....	19,690,712	1,336,646	993,871	22,021,229
49. Express: Outgoing.....	246,297	1,937	16,165	264,399
50. Insurance: (a) Fire.....	887,084	217,330	276,587	1,381,001
(b) Sickness and accident.....	539,049	60,010	20,852	619,911
(c) Group.....	404,000	83,173	47,455	534,628
(d) Workmen's compensation.....	4,598,468	2,551,400	476,889	7,626,757
(e) Use and occupancy.....	156,000	17,044	54,993	228,037
(f) Bullion.....	34,043	-	-	34,043
(g) Other.....	916,006	278,460	53,501	1,247,967
51. Advertising.....	52,135	73,464	113,327	238,926
52. Engineering fees.....	738,002	261,414	130,901	1,130,317
53. Patents and royalties.....	219,173	246,563	160,998	1,626,734
54. TOTAL	160,413,576	41,102,345	32,867,897	234,383,818
55. Estimate of amounts paid for incoming freight, express and cartage, as included in f.o.b. mine values given above.....	7,833,485	595,254	559,499	8,988,238

Source: Dominion Bureau of Statistics.

Table 11

Principal Statistics of Establishments Primarily Engaged
in the Production of Miscellaneous Machinery (a)

<u>Year</u>	<u>Establishments</u> <u>No.</u>	<u>Employees</u> <u>No.</u>	<u>Salaries</u> & <u>Wages</u> <u>(\$000)</u>	<u>Cost of Fuel</u> & <u>Electricity</u> <u>(\$000)</u>	<u>Cost of</u> <u>Materials</u> <u>(\$000)</u>	<u>Value Added</u> <u>by Manufacture</u> <u>(\$000)</u>	<u>Value of</u> <u>Factory</u> <u>Shipments</u> <u>(\$000)</u>
1951	312	24,254	72,968	2,436	83,357	127,467	213,260
1952	330	24,796	81,591	2,531	86,405	154,598	243,534
1953	325	24,119	82,538	2,514	83,829	157,032	243,374
1954	326	24,344	86,114	2,756	88,771	155,209	246,224
1955	331	24,975	91,222	3,007	106,266	152,575	262,944
1956	340	28,047	108,812	3,320	148,180	208,834	342,943
1957 (b)	380	30,844	122,952	3,909	173,251	226,355	403,515
1958	407	26,094	107,873	3,914	153,271	192,903	350,088
1959	404	27,407	119,004	4,170	167,350	208,564	380,084
1960	409	27,606	123,792	4,249	174,357	215,326	393,932

(a) Mainly industrial machinery; excludes household, office and store machinery.

(b) The statistics for 1957 and subsequent years are not strictly comparable with those for earlier years. Had it not been for the revisions, employment in 1957 would have been 29,250 and value of factory shipments would have been \$377 million.

Source: Dominion Bureau of Statistics.

Table 12

Factory Shipments of Miscellaneous Machinery by All Industries(a)
(millions of dollars)

<u>Description</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>
Air Compressors	3.6	3.5	6.4	7.9	5.6	6.2	5.8	8.0	8.7	6.8	6.7
Power Pumps	9.2	9.5	12.7	14.4	14.4	14.8	12.5	16.5	17.0	15.3	14.3
Boilers	14.2	15.5	18.6	18.9	18.5	16.3	18.1	27.6	23.9	27.5	34.4
Industrial Engines & Parts	14.2	20.5	29.1	30.6	30.1	34.9	34.4	34.9	39.8	51.2	49.7
Construction, Excavating, Dredging & Loading Equipment & Parts	7.7	9.6	10.6	11.3	9.6	8.8	13.9	19.3	23.4	25.1	30.7
Conveying, Elevating & Materials Handling Equipment	28.4	25.3	30.0	34.8	39.2	40.0	36.4	59.7	68.8	53.3	55.8
Drilling, Excavating, Mining & Related Machinery	12.2	14.6	20.7	30.3	23.9	25.9	29.7	49.0	56.1	38.6	38.4
Metal-Working Machinery	6.5	6.5	9.9	19.9	19.6	11.3	7.7	11.3	13.4	12.7	10.9
Printing & Bookbinding Machinery & Parts	0.3	0.3	0.4	0.3	0.3	0.5	0.4	0.7	1.4	1.3	(b)
Logging & Sawmill Machinery	5.5	6.1	11.3	9.2	8.9	8.7	14.1	18.4	14.5	11.8	14.4
Pulp & Paper Industries Machinery & Parts	16.3	14.7	18.9	22.6	19.9	16.2	17.1	30.1	33.4	14.7	18.1
Textile Industries Machinery & Parts	1.0	0.6	0.4	0.6	0.3	0.4	0.4	0.3	0.4	0.3	0.1
Woodworking Machinery & Parts (Incl. home workshop)	3.0	3.2	3.8	4.0	3.8	3.4	3.7	4.7	3.8	5.2	5.4
Other Industrial Machinery & Parts	34.0	39.1	43.3	56.1	62.8	56.5	65.2	75.8	84.1	83.6	77.0
Total	156.1	169.0	216.1	260.9	256.9	243.9	259.4	356.3	388.7	347.4	355.9

(a) Mainly industrial machinery; see footnotes to Table 13.

(b) Included with "other industrial machinery and parts".

Source: Economics Branch, Department of Trade and Commerce.

Table 13

Apparent Canadian Market for Miscellaneous Machinery and Parts^(a)
(millions of dollars)

<u>Year</u>	<u>Canadian Factory Shipments^(b)</u>	<u>Imports</u>	<u>Exports</u>	<u>Apparent Total Supply</u>	<u>Imports as Percentage of Supply</u>
1949	156	214	20	350	61.1
1950	169	217	13	373	58.2
1951	216	339	21	534	63.5
1952	261	377	28	610	61.8
1953	257	409	28	638	64.1
1954	244	373	25	592	63.0
1955	259	439	23	675	65.0
1956	356	626	32	950	65.9
1957	389	626	37	978	64.0
1958	347	522	28	841	62.1
1959	356	564	32	888	63.5
1960	363(c)	536	45	854	62.8
1961	345(c)	545	55	835	65.3

(a) Excludes agricultural implements, tractors, electrical apparatus, gas engines and office, store and service equipment. Includes some motor vehicle diesel engines prior to 1957.

(b) Statistics of Canadian factory shipments contain some unavoidable double counting. This occurs where machinery shipped from one machinery plant is used as a component in a machine shipped by another plant. Also, the value of shipments includes the value of imported components which are used.

(c) Estimated.

Source: From data supplied by the Economics Branch, Department of Trade and Commerce.

APPENDIX V

Financial Data

Table 1	Gold Mining
Table 2	Coal Mining
Table 3	Metal Mining Other than Gold
Table 4	Non-Metal Mining
Table 5	Primary Iron and Steel
Table 6	Heavy Electrical Machinery and Equipment
Table 7	Machinery, Not Elsewhere Classified

Table 1

Financial Information - Gold Mining
(financial figures in millions of dollars)

Fiscal years or taxation years	1952	1953	1954	1955	1956 (\$'000,000)	1957	1958	1959	1960
Current assets, excluding investments	59.3	67.9	70.1	67.3	64.0	59.7	61.7	57.6	64.9
Fixed assets	232.6	271.7	282.1	283.0	270.0	263.1	257.4	252.5	295.0
Other assets	22.8	43.6	44.0	39.8	47.7	36.0	29.0	32.3	33.3
Total assets before depreciation, excluding investments	314.7	383.2	396.2	390.1	381.7	358.8	348.1	342.4	393.2
Less - accumulated depreciation and depletion	113.7	118.0	130.3	135.6	128.5	138.1	144.5	138.9	167.2
Total assets after depreciation and depletion, excluding investments	201.0	265.2	265.9	254.5	253.2	220.7	203.6	203.5	226.0
Add. Investments	114.1	138.4	134.4	163.9	166.1	178.1	177.9	209.2	242.5
	315.1	403.6	400.3	418.4	419.3	398.8	381.5	412.7	468.5
Less - Liabilities	26.8	45.5	46.9	37.3	37.1	30.6	28.0	30.8	49.1
Net Worth	288.3	358.1	353.4	381.1	382.2	368.2	353.5	381.9	419.4
Profit before income tax(a)	3.1	3.3	4.8	4.9	4.2	2.7	5.8	4.2	6.8
- as per cent of total assets after depreciation and depletion(b)	1.5%	1.2%	1.8%	1.9%	1.7%	1.2%	2.8%	2.1%	3.0%
- as per cent of sales	2.2%	2.3%	3.1%	3.3%	3.3%	2.1%	4.3%	3.1%	4.6%
Investment income	6.2	5.8	9.1	7.3	8.0	8.3	6.4	15.4	8.0
Dominion income tax	4.0	3.5	4.3	4.0	4.0	2.5	3.3	3.3	3.8
Profit, including investment income, after income tax	5.3	5.6	9.6	8.2	8.2	8.5	8.9	16.3	11.0
- as per cent of net worth	1.8%	1.6%	2.7%	2.2%	2.1%	2.3%	2.5%	4.3%	2.6%
Dividends paid	19.4	18.6	22.1	20.0	19.6	18.9	17.9	25.2	19.4
Selected expenses charged to above profits:									
Depreciation charged	14.4	13.8	15.0	15.0	13.7	16.1	15.3	15.0	16.0
Depreciation charged	6.3	8.1	8.6	6.5	6.6	7.4	6.7	6.1	6.0
Write-off mine development	5.8	2.2	3.3	2.2	2.0	2.0	1.2	2.0	3.3
Total interest charged	..	..	..	..	0.4	0.4	0.5	0.5	0.7
Sales	145.7	143.6	156.9	147.3	125.4	128.1	135.8	134.6	146.4
- per \$1.00 of total assets after depreciation and depletion(b)	72¢	54¢	59¢	58¢	50¢	58¢	67¢	66¢	65¢
Number of profit companies	28	26	32	27	31	20	23	30	19
Number of loss companies	49	134	130	110	116	87	61	97	86
(a) Excluding income from investments									
(b) Excluding investments									

Source: Taxation Statistics, Department of National Revenue

Financial Information - Coal Mining
(financial figures in millions of dollars)

Table 2

Fiscal years or taxation years	1952	1953	1954	1955	1956 (\$'000,000)	1957	1958	1959	1960
Current assets, excluding investments	28.0	26.0	27.1	24.0	25.5	21.0	40.6	29.8	16.9
Fixed assets	139.0	136.5	142.7	136.8	95.2	89.5	147.8	141.6	96.5
Other assets	4.8	3.8	4.4	4.3	5.3	8.2	4.4	4.9	15.6
Total assets before depreciation, excluding investments	171.8	166.3	174.2	165.1	126.0	118.7	192.8	176.3	129.0
Less - accumulated depreciation and depletion	72.8	76.0	77.9	75.7	45.9	50.6	86.9	86.6	59.8
Total assets after depreciation and depletion, excluding investments	99.0	90.3	96.3	89.4	80.1	68.1	105.9	89.7	69.2
Add Investments	21.9	20.1	17.3	17.5	13.9	15.8	14.7	13.3	31.2
	120.9	110.4	113.6	106.9	94.0	83.9	120.6	103.0	100.4
Less - Liabilities	52.2	48.8	51.7	43.0	33.4	30.4	54.2	45.1	32.4
Net Worth	68.7	61.6	61.9	63.9	60.6	53.5	66.4	57.9	68.0
Profit before income tax(a)	1.7	(0.4)	3.0	2.7	1.7	1.2	0.8	0.7	(0.1)
- as per cent of total assets after depreciation and depletion(b)	1.7%	(0.5%)	3.1%	3.0%	2.1%	1.8%	0.8%	0.8%	-
- as per cent of sales	1.4%	(0.4%)	2.9%	2.8%	2.9%	2.0%	1.2%	0.8%	-
Investment income	1.4	0.3	0.2	0.2	0.3	0.4	0.5	0.3	0.8
Dominion income tax	2.3	1.8	1.2	1.0	1.1	0.7	0.5	0.4	0.3
Profit, including investment income after income tax(c)	0.8	(1.9)	2.0	1.9	0.9	0.9	0.8	0.6	0.4
- as per cent of net worth	1.2%	(3.1%)	3.3%	3.0%	1.5%	1.7%	1.2%	1.0%	0.1%
Dividends paid	1.7	.6	.6	1.1	.8	1.5	1.7	1.3	1.4
Selected expenses charged to above profits:									
Depletion charged	1.3	1.1	1.2	1.0	0.8	1.1	1.1	0.7	0.9
Depreciation charged	4.8	2.6	3.2	3.7	6.0	3.0	3.6	4.7	5.0
Write-off mine development	-	-	.06	-	-	-	-	-	0.2
Total interest charged	..	..	..	..	0.6	0.6	1.4	1.6	0.9
Sales	121.6	101.2	102.7	95.6	58.7	61.0	69.4	84.5	54.1
- per \$1.00 of Total assets after depreciation and depletion(b)	\$1.22	\$1.12	\$1.07	\$1.07	73¢	90¢	66¢	94¢	78¢
Number of profit companies	44	35	35	43	62	28	28	41	31
Number of loss companies	53	48	41	25	19	32	43	11	39
(a) Excluding income from investments									
(b) Excluding investments									

(c) Figures in brackets indicate a loss

Source: Taxation Statistics, Department of National Revenue

Financial Information - Metal Mining Other than Gold
(financial figures in millions of dollars)

Table 3

Fiscal years or taxation years	1952	1953	1954	1955	1956 (\$'000,000)	1957	1958	1959	1960
Current assets, excluding investments	247.9	275.5	310.7	384.2	447.3	482.4	443.2	486.9	530.3
Fixed assets	619.4	944.8	969.8	1,075.6	1,415.5	1,647.6	1,782.2	1,794.9	2,042.7
Other assets	43.1	142.2	136.7	152.8	318.0	438.4	486.3	451.7	409.6
Total assets before depreciation, excluding investments	910.4	1,362.5	1,417.2	1,612.6	2,180.8	2,568.4	2,711.7	2,733.5	2,982.6
Less - accumulated depreciation and depletion	308.9	352.0	386.6	449.7	532.8	589.5	695.7	831.0	986.1
Total assets after depreciation and depletion excluding investments	601.5	1,010.5	1,030.6	1,162.9	1,648.0	1,978.9	2,016.0	1,902.5	1,996.5
Add Investments	211.9	389.3	491.7	700.6	755.8	789.6	750.7	817.5	873.4
	813.4	1,399.8	1,522.3	1,863.5	2,403.8	2,768.5	2,766.7	2,720.0	2,869.9
Less - Liabilities	153.5	380.9	495.4	668.1	764.2	1,039.8	1,015.6	943.7	879.1
Net Worth	659.9	1,018.9	1,026.9	1,195.4	1,639.6	1,728.7	1,751.1	1,776.3	1,990.8
Profit before income tax(a)	113.1	89.5	90.4	158.7	146.5	86.6	34.3	91.4	93.6
- as per cent of total assets after depreciation and depletion(b)	18.8%	8.9%	8.8%	13.6%	8.9%	4.4%	1.7%	4.8%	4.7%
- as per cent of sales	17.5%	14.7%	13.9%	17.1%	13.1%	8.5%	3.5%	7.4%	7.5%
Investment income	37.5	12.1	27.6	44.3	46.6	38.4	16.0	20.3	55.5
Dominion income tax	58.3	45.6	43.9	75.3	73.2	39.0	20.7	43.1	44.7
Profit, including investment income, after income tax	92.3	56.0	74.1	127.7	119.9	86.0	29.6	68.6	104.4
- as per cent of net worth	14.0%	5.5%	7.2%	10.7%	7.3%	5.0%	1.7%	3.9%	5.2%
Dividends paid	112.5	93.2	98.1	138.6	143.6	121.5	91.7	113.7	113.7
Selected expenses charged to above profits:									
Depletion charged	54.2	43.1	41.9	62.9	73.4	45.9	25.0	44.5	47.6
Depreciation charged	25.3	33.6	71.9	78.5	72.7	84.8	96.3	146.9	150.0
Write-off mine development	0.9	7.4	20.7	71.5	13.4	13.2	33.0	42.3	66.5
Total interest charged	..	..	..	..	19.3	26.3	32.4	29.4	20.4
Sales	644.9	607.3	651.5	927.9	1,117.2	1,018.9	983.0	1,228.3	1,240.2
- per \$1.00 of Total assets after depreciation and depletion(b)	\$1.07	60¢	63¢	80¢	68¢	51¢	49¢	65¢	62¢
Number of profit companies	22	53	62	70	99	78	59	94	57
Number of loss companies	18	177	166	188	300	434	363	280	285
(a) Excluding income from investments									
(b) Excluding investments									

Source: Taxation Statistics, Department of National Revenue

Table 4
Financial Information - Non-Metal Mining^(a)
(financial figures in millions of dollars)

Fiscal years or taxation years	1953	1954	1955	1956	1957 (\$'000,000)	1958	1959	1960
Current assets, excluding investments								
Fixed assets	30.0	33.1	42.7	49.7	44.7	54.7	65.5	66.3
Other assets	111.9	140.9	143.5	188.0	204.5	247.6	249.7	268.9
Total assets before depreciation, excluding investments	6.6	12.1	12.0	21.0	21.3	46.0	65.6	27.4
	148.5	186.1	198.2	258.7	270.5	348.3	380.8	362.6
Less - accumulated depreciation and depletion	61.4	64.0	75.5	85.6	103.7	111.8	117.1	128.2
Total assets after depreciation and depletion, excluding investments	87.1	122.1	122.7	173.1	166.8	236.5	263.7	234.4
Add Investments	69.6	60.3	52.6	70.5	77.1	85.4	96.8	108.1
	156.7	182.4	175.3	243.6	243.9	321.9	360.5	342.5
Less - Liabilities	27.9	38.7	45.0	64.9	71.2	98.8	149.4	104.1
Net Worth	128.8	143.7	130.3	178.7	172.7	223.1	211.1	238.4
Profit before income tax ^(b)	21.1	15.9	21.7	19.3	18.0	17.3	20.1	22.2
- as per cent of total assets after depreciation and depletion ^(c)	24.4%	13.1%	17.7%	11.1%	10.8%	7.3%	7.6%	9.5%
- as per cent of sales	17.7%	13.4%	16.8%	12.9%	11.2%	11.5%	12.1%	13.0%
Investment income	0.3	1.3	0.3	0.2	0.4	0.5	0.6	1.9
Dominion income tax	9.5	7.5	9.2	8.2	7.0	6.9	8.6	9.7
Profit, including investment income, after income tax	11.9	9.7	12.8	11.3	11.4	10.9	12.1	14.4
- as per cent of net worth	9.3%	6.7%	9.8%	6.3%	6.6%	4.9%	5.7%	6.0%
Dividends paid	8.5	15.3	34.4	5.3	21.5	22.7	19.1	12.6
Selected expenses charged to above profit:								
Depletion charged	10.3	6.7	10.0	9.2	9.2	7.9	9.9	11.3
Depreciation charged	9.7	12.6	13.2	12.6	13.3	12.4	17.4	17.4
Write-off mine development	1.1	0.8	0.4	0.5	0.3	6.2	5.9	24.1
Total interest charged	..	..	..	1.0	1.1	1.6	1.9	1.1
Sales	119.6	118.9	129.5	149.8	160.8	151.0	165.9	171.1
- per \$1.00 of Total assets after depreciation and depletion ^(c)	\$1.37	98¢	\$1.06	87¢	96¢	64¢	63¢	73¢
Number of profit companies	35	31	32	29	55	33	34	30
Number of loss companies	19	25	26	26	41	34	42	25
(a) Excludes coal, oil and natural gas								
(b) Excluding income from investments								
(c) Excluding investments								

Source: Taxation Statistics, Department of National Revenue

Table 5
Financial Information - Primary Iron and Steel
(financial figures in millions of dollars)

Fiscal years or taxation years	1953	1954	1955	1956	1957 (\$'000,000)	1958	1959	1960 ^(c)
Current assets, excluding investments	186.3	209.0	252.0	319.5	331.8	331.0	355.7	388.6
Fixed assets	400.3	454.7	534.1	562.7	639.1	714.4	810.3	1,078.3
Other assets	6.4	8.2	5.7	5.8	7.3	7.6	8.7	27.8
Total assets before depreciation, excluding investments	593.0	671.9	791.8	888.0	978.2	1,053.0	1,174.7	1,494.7
Less - accumulated depreciation and depletion	249.8	273.6	319.0	312.7	341.1	377.3	417.9	544.6
Total assets after depreciation and depletion, excluding investments	343.2	398.3	472.8	575.3	637.1	675.7	756.8	950.1
Add Investments	126.3	131.4	160.0	161.7	141.8	165.9	195.8	95.8
	469.5	529.7	632.8	737.0	778.9	841.6	952.6	1,045.9
Less - Liabilities	193.5	225.9	278.1	313.2	295.5	317.9	370.3	361.3
Net Worth	276.0	303.8	354.7	423.8	483.4	523.7	582.3	684.6
Profit before income tax ^(a)	41.2	27.4	67.7	104.2	95.0	73.8	123.8	71.8
- as per cent of total assets after depreciation and depletion ^(b)	12.0%	6.9%	14.3%	18.1%	14.9%	10.9%	16.4%	7.6%
- as per cent of sales	8.3%	5.1%	9.6%	12.8%	11.2%	10.6%	12.9%	6.9%
Investment income	5.5	5.6	2.0	1.8	3.2	9.6	14.4	5.0
Dominion income tax	19.9	15.4	31.2	48.0	37.4	29.4	53.4	30.5
Profit, including investment income, after income tax	26.8	17.6	38.5	58.0	60.8	54.0	84.8	46.3
- as per cent of net worth	9.7%	5.8%	10.9%	13.7%	12.6%	10.3%	14.6%	6.8%
Dividends paid	13.8	11.2	10.9	15.0	22.7	13.1	30.6	27.3
Selected expenses charged to above profits:								
Depreciation charged	46.2	30.5	53.5	55.4	53.7	56.0	58.0	77.2
Total interest charged	..	..	..	4.6	4.9	4.9	5.8	6.4
Sales	495.3	542.4	702.9	815.8	848.1	695.1	961.3	1,048.0
- per \$1.00 of Total assets after depreciation ^(b)	\$1.44	\$1.36	\$1.49	\$1.42	\$1.33	\$1.03	\$1.27	\$1.10
Number of profit companies	31	23	30	33	37	34	22	40
Number of loss companies	12	15	9	3	-	21	12	14
(a) Excluding income from investments								
(b) Excluding investments								
(c) Iron and steel mills								

Source: Taxation Statistics, Department of National Revenue

Financial Information - Heavy Electrical Machinery and Equipment
(financial figures in millions of dollars)

Table 6

Fiscal years or taxation years	1953	1954	1955	1956 (\$'000,000)	1957	1958	1959(c)
Current assets, excluding investments							
Fixed assets	51.8	41.5	36.0	58.9	57.5	49.5	50.3
Other assets	34.1	27.3	23.7	35.4	39.3	38.1	37.7
Total assets before depreciation, excluding investments	2.4	2.2	1.6	1.7	1.5	1.7	1.6
Less - accumulated depreciation and depletion	88.3	71.0	61.3	96.0	98.3	89.3	89.6
Total assets after depreciation and depletion, excluding investments	14.0	14.5	11.0	16.9	19.8	18.0	16.2
Add Investments	74.3	56.5	50.3	79.1	78.5	71.3	72.7
Less - Liabilities	1.3	4.1	6.0	4.8	5.8	9.3	8.8
Net Worth	75.6	60.6	56.3	83.9	84.3	80.6	81.5
Profit before income tax ^(a)	36.0	24.4	22.4	45.2	41.8	34.4	36.1
- as per cent of total assets after depreciation and depletion ^(b)	39.6	36.2	33.9	38.7	42.5	46.2	45.4
- as per cent of sales	8.1	4.5	3.3	5.2	8.3	4.0	4.5
Investment Income	10.9%	7.9%	6.6%	6.6%	10.6%	5.6%	6.2%
Dominion income tax	6.5%	4.9%	4.0%	4.2%	6.1%	3.4%	4.0%
Profit, including investment income, after income tax	-	-	-	-	-	.1	.3
- as per cent of net worth	3.9	2.3	1.6	2.4	3.2	1.8	2.3
Dividends paid	4.2	2.2	1.7	2.8	5.1	2.3	2.5
Selected expenses charged to above profits:	10.5%	6.1%	5.0%	7.2%	12.0%	5.0%	5.5%
Depreciation charged	.7	1.1	.6	.4	.5	.6	.8
Total interest charged							
Sales	2.1	1.5	1.4	2.3	2.0	1.8	2.6
- per \$1.00 of Total assets after depreciation and depletion ^(b)	..	..	..	.6	.9	.8	.7
Number of profit companies	124.2	91.1	82.2	123.5	137.0	119.1	111.3
Number of loss companies	\$1.67	\$1.62	\$1.63	\$1.56	\$1.75	\$1.67	\$1.53
(a) Excluding income from investments	51	47	52	65	62	61	78
(b) Excluding investments	9	10	16	16	17	23	24

(c) Comparable figures for later years are not available

Source: Taxation Statistics, Department of National Revenue

Table 7
Financial Information - Machinery, Not Elsewhere Classified (a)
(financial figures in millions of dollars)

Fiscal years or taxation years	1953	1954	1955	1956	1957 (\$'000,000)	1958	1959	1960 ^(d)
Current assets, excluding investments	169.8	170.4	166.8	220.1	193.7	202.3	210.3	233.7
Fixed assets	125.1	118.1	126.5	142.2	131.0	168.6	166.8	208.0
Other assets	8.0	6.9	8.6	7.6	6.9	8.0	8.3	9.9
Total assets before depreciation, excluding investments	302.9	295.4	301.9	369.9	331.6	378.9	385.4	451.6
Less - accumulated depreciation and depletion	56.1	53.1	58.9	64.1	56.4	75.6	81.6	104.4
Total assets after depreciation and depletion, excluding investments	246.8	242.3	243.0	305.8	275.2	303.3	303.8	347.2
Add investments	21.1	15.2	21.2	23.2	16.0	18.3	30.6	44.7
	267.9	257.5	264.2	329.0	291.2	321.6	334.4	391.9
Less - Liabilities	117.5	116.8	119.8	173.9	144.4	141.0	151.1	172.3
Net Worth	150.4	140.7	144.4	155.1	146.8	180.6	183.3	219.6
Profit before income tax ^(b)	31.2	24.5	27.2	38.2	40.9	22.9	28.2	26.2
- as per cent of total assets after depreciation and depletion ^(c)	12.6%	10.1%	11.2%	12.5%	14.9%	7.6%	9.3%	7.5%
- as per cent of sales	9.3%	8.2%	8.0%	8.8%	9.2%	5.6%	6.9%	5.2%
Investment income	0.2	0.7	0.8	2.2	0.4	0.9	0.6	0.4
Dominion income tax	14.5	11.5	12.2	17.4	16.7	10.0	11.5	11.8
Profit, including investment income, after income tax	16.9	13.7	15.8	23.0	24.6	13.8	17.3	14.8
- as per cent of net worth	11.3%	9.7%	10.9%	14.8%	16.8%	7.6%	9.4%	6.7%
Dividends paid	5.8	6.6	7.5	9.7	9.3	8.2	6.2	7.2
Selected expenses charged to above profits:								
Depreciation charged	7.2	6.9	7.5	8.8	8.8	9.1	9.1	9.9
Total interest charged	..	..	..	2.0	2.6	2.8	2.3	3.4
Sales	336.4	299.4	341.8	435.3	445.8	408.4	410.2	500.5
- per \$1.00 of Total assets after depreciation ^(c)	\$1.36	\$1.24	\$1.41	\$1.42	\$1.62	\$1.35	\$1.35	\$1.44
Number of profit companies	225	193	209	260	227	244	210	346
Number of loss companies	62	88	75	66	58	137	100	77

(a) Excludes heavy electrical machinery and equipment, agricultural implements, household, office and store machinery, and machine tools.
(b) Excluding income from investments (c) Excluding investments (d) Machine Tools and Miscellaneous Machinery

Source: Taxation Statistics, Department of National Revenue

Computation of the Size of the Market
for Mining Equipment

Total purchases of machinery and equipment by the mineral industries other than petroleum and natural gas could only be estimated. Since the total value of imports under the mining equipment schedule was known, estimates were obtained by sampling⁽¹⁾ to determine what percentage of total purchases of machinery and equipment which these imports represented. Using the percentage obtained, the approximate total value of purchases of machinery and equipment was calculated.

The samples probably understate to some degree the proportion of purchases which have been imported. Machinery or equipment ordered from a Canadian supplier may contain imported component parts; in some cases the entire article may, unknown to the purchaser, have originated abroad. However, it is known that many of the reporting companies went to considerable lengths in tracing down sources of supply, and the errors in the sample are not believed to be of major proportions. A spokesman for the Machinery & Equipment Manufacturers' Association of Canada estimated that the Canadian content of most of the machinery made in Canada was 90 per cent or higher.

Altogether, the evidence seems to suggest that something of the order of one fifth of the value of machinery and equipment purchased by the mineral industries other than petroleum and natural gas in 1959 and 1960 was imported, and that these imports were entered mainly but not entirely under the mining equipment schedule. There have, of course, undoubtedly been variations in these and other years. The Quebec Asbestos Mining Association commented that imports of its member companies in relation to total purchases had been unusually high in 1960. In 1957, a year of exceptionally rapid expansion in Canada, the delivery dates of some suppliers became extended with the result that an unusually large proportion of purchases probably had to be imported.

The average value of imports under the mining equipment schedule was about \$34.4 million in the years 1959 and 1960. On the assumption that imports entered under these tariff items represented 17 per cent of the total value of machinery and equipment purchased, then total purchases by the mineral industries other than oil and natural gas would have averaged about \$200 million in each of the years 1959 and 1960.

An indication of how these purchases have varied over the years can be obtained from statistics of capital and repair expenditures on machinery and equipment which are collected by the Dominion Bureau of Statistics. The statistics include installation costs; for this and other reasons they are not equivalent to total purchases of machinery and equipment. None the less, a high degree of correlation

(1) The results of the samples are to be found in Section 2 of this Report.

between the two series should exist. Accordingly, using the samples described above, the statistics of capital expenditures have been deflated to provide estimates of purchases by years, with the following results.

Estimated Purchases of Machinery and Equipment
By the Mineral Industries Other than Oil and Natural Gas^(a)

<u>Year</u>	<u>Value (\$ millions)</u>
1948	54
1949	67
1950	78
1951	107
1952	133
1953	144
1954	136
1955	145
1956	215
1957	258
1958	184
1959	182
1960	222
1961	191

^(a) Capital and repair expenditures on machinery and equipment by the mining, quarrying and the non-ferrous smelting and refining industries, plus one half of those by the primary iron and steel industry. This total was then reduced by one third.

Selected List of Mining Equipment Made in Canada

presented by

Machinery & Equipment Manufacturers' Association of Canada
3405 Cote des Neiges Road, Montreal 25, Quebec

BLAST FURNACES

Matheson, I. & Co. Ltd., New Glasgow, N.S.
Whiting Corporation (Canada) Ltd., Welland, Ont.

ELECTRIC FURNACES

Canadian General Electric Co. Ltd., Toronto, Ont.
Canefco Limited, Toronto, Ont.
Whiting Corporation (Canada) Ltd., Welland, Ont.

ROASTING FURNACES

Canadian Allis-Chalmers Limited, Lachine, P.Q.

ORE ROASTING FURNACES

Dorr-Oliver-Long, Ltd., Orillia, Ont.
Foster-Wheeler Ltd., St. Catharines, Ont.

CONVERTERS

Canadian Allis-Chalmers, Ltd., Lachine, P.Q.

CUPOLAS

Whiting Corporation (Canada) Ltd., Welland, Ont.
Plate & Structural Steel, Ltd., Toronto, Ont.

DIAMOND DRILLS

Boyles Bros. Drilling Company, Ltd., Vancouver, B.C.
Canadian Longyear Limited, North Bay, Ont.
Delro Industries, Limited, Winnipeg, Man.
Inspiration Mining & Development Co. Ltd., North Bay, Ont.
Joy Manufacturing Co. (Canada) Ltd., Galt, Ont.
J.K. Smit & Sons of Canada, Ltd., Toronto, Ont.

ROCK DRILLS

Atlas Copco Canada, Ltd., Dorval, P.Q.
Canadian Ingersoll-Rand Co. Ltd., Montreal, P.Q.
Industrial Machinery Ltd., Montreal, P.Q.
Joy Manufacturing Co. (Canada) Ltd., Galt, Ont.
J.K. Smit & Sons of Canada, Ltd., Toronto, Ont.

AGITATORS

Canada Iron Foundries, Ltd., Montreal, P.Q.
 Canadian Vickers, Ltd., Montreal, P.Q.
 Delamere & Williams Co. Ltd., Toronto, Ont.
 Denver Equipment Co. (Canada) Ltd., Toronto, Ont.
 Dorr-Oliver-Long, Limited, Orillia, Ont.
 Greey Mixing Equipment Ltd., Toronto, Ont.
 Hardinge Company, Inc., Toronto, Ont. (Foster-Wheeler Limited)
 Kennedy, Wm. & Sons, Ltd., The, Owen Sound, Ont.
 Patterson Foundry & Machine Co. (Canada) Ltd., Toronto, Ont.

BALL, ROD AND PEBBLE MILLS

Babcock-Wilcox & Goldie-McCulloch Ltd., Galt, Ont.
 Canada Iron Foundries Ltd., Montreal, P.Q.
 Canadian Allis-Chalmers Ltd., Lachine, P.Q.
 Canadian Vickers, Ltd., Montreal, P.Q.
 Denver Equipment Co. (Canada) Ltd., Toronto, Ont.
 Dominion Engineering Works, Ltd., Montreal, P.Q.
 Hardinge Company, Inc., Toronto, Ont. (Foster-Wheeler Limited)
 Patterson Foundry & Machine Co. (Canada) Ltd., Toronto, Ont.

CLASSIFIERS

Canadian Locomotive Co. Ltd., Kingston, Ont.
 Canadian Vickers Ltd., Montreal, P.Q.
 Denver Equipment Co. (Canada) Ltd., Toronto, Ont.
 Dorr-Oliver-Long, Ltd., Orillia, Ont.
 Hardinge Company, Inc., Toronto, Ont. (Foster-Wheeler Limited)
 Horton Steel Works Ltd., Toronto, Ont.
 Vancouver Iron & Engineering Works Ltd., Vancouver, B.C.

COAL CUTTING MACHINES

Canadian Ingersoll-Rand Co. Ltd., Montreal, P.Q.

CRUSHERS, ORE AND ROCK

Bertram, John & Sons Co., Ltd., Dundas, Ont.
 Canadian Allis-Chalmers Ltd., Lachine, P.Q.
 Canadian Vickers Limited, Montreal, P.Q.
 Dominion Engineering Works, Ltd., Montreal, P.Q.
 Forano Limited, Plessisville, P.Q.
 Hall Machinery of Canada, Ltd., Sherbrooke, P.Q.
 Jeffrey Manufacturing Co., Limited, LaSalle, P.Q.
 Joy Manufacturing Co., Ltd., LaSalle, P.Q.
 Maritime Steel & Foundries Ltd., New Glasgow, N.S.
 Sawyer-Massey Division of the Ford-Smith Machine Company Ltd.,
 Hamilton, Ont.
 Vancouver Iron & Engineering Works Ltd., Vancouver, B.C.

FILTERS

Canadian Locomotive Co. Ltd., Kingston, Ont.
 Day Company of Canada, Ltd., Toronto, Ont.
 Dorr-Oliver-Long, Limited, Orillia, Ont.
 Horton Steel Works Ltd., Toronto, Ont.
 Kennedy, Wm. & Sons, Ltd., Owen Sound, Ont.
 Canada Iron Foundries, Ltd., Montreal, P.Q.
 Patterson Foundry & Machine Co. (Canada) Ltd., Toronto, Ont.

FIOTATION MACHINES

Denver Equipment Co. (Canada) Ltd., Toronto, Ont.
 Manitoba Bridge & Engineering Works Ltd., Winnipeg, Man.

SCREENS

Calgary Iron & Engineering Ltd., Calgary, Alta.
 Canadian Allis-Chalmers Ltd., Lachine, P.Q.
 Canadian Brown Steel Tank Co. Ltd., Brandon, Man.
 Canadian Locomotive Co. Ltd., Kingston, Ont.
 Canadian Vickers, Limited, Montreal, P.Q.
 Dillon, Thomas A. Limited, Toronto, Ont.
 Dorr-Oliver-Long, Limited, Orillia, Ont.
 Forano Limited, Plessisville, P.Q.
 Hall Machinery of Canada, Ltd., Sherbrooke, P.Q.
 Jeffrey Manufacturing Co. Ltd., LaSalle, P.Q.
 Manitoba Bridge & Engineering Works, Ltd., Winnipeg, Man.
 Link-Belt Limited, Toronto, Ont.
 Matheson, I. & Co. Limited, New Glasgow, N.S.
 Stephens-Adamson Mfg. Co. of Canada, Ltd., Belleville, Ont.
 Tyler, W.S. Co. of Canada, Limited, The, St. Catharines, Ont.
 United Steel Corp., Limited, Toronto, Ont.
 Wabi Iron Works Limited, New Liskeard, Ont.

THICKENERS

Canadian Brown Steel Tank Co. Ltd., Brandon, Man.
 Dorr-Oliver-Long, Limited, Orillia, Ont.
 Hardinge Company, Inc., Toronto, Ont. (Foster-Wheeler Limited)
 Koehring-Waterous, Ltd., Brantford, Ont.
 Manitoba Bridge & Engineering Works Ltd., Winnipeg, Man.
 Patterson Foundry & Machine Co. (Canada) Ltd., Toronto, Ont.
 Port Arthur Shipbuilding Co., Port Arthur, Ont.

ORE FEEDERS

Forano Limited, Plessisville, P.Q.
 Link-Belt Limited, Toronto, Ont.
 Manitoba Bridge & Engineering Works Ltd., Winnipeg, Man.
 Stephens-Adamson Mfg. Co. of Canada, Ltd., Belleville, Ont.

SEPARATORS

Amalgamated Electric Corp. Limited, Toronto, Ont.
 Denver Equipment (Canada) Limited, Toronto, Ont.
 Dorr-Oliver-Long Limited, Orillia, Ont.
 Joy Manufacturing Co. (Canada) Ltd., Galt, Ont.
 Kipp-Kelly Limited, Winnipeg, Man.

CONCENTRATING TABLES

Dorr-Oliver-Long Limited, Orillia, Ont.

APPENDIX VIII

History of the Tariff Items

History of the Tariff Items

Mining machinery was accorded special treatment in the Customs Tariff as early as 1890. In that year, duty-free entry was provided for:⁽¹⁾

- "291. Mining machinery imported within three years after the passing of this Act which is at the time of its importation of a class or kind not made in Canada."

The Customs Tariff of 1897 provided duty-free entry for the following goods:⁽²⁾

- "515. Machinery imported exclusively for mining, smelting and reducing, viz:- Coal cutting machines, except percussion coal cutters, coal heading machines, coal augers and rotary coal drills, core drills, miners' safety lamps, coal washing machinery, coke-making machinery, ore drying machinery, ore roasting machinery, electric or magnetic machines for separating or concentrating iron ores, blast furnace water jackets, converters for metallurgical processes in iron or copper, briquette making machines, ball and rock emery grinding machines, copper plates, plated or not, machinery for extraction of precious metals by the chlorination or cyanide processes, monitors, giants and elevators for hydraulic mining, amalgam safes, automatic ore samplers, automatic feeders, jigs, classifiers, separators, retorts, buddles, vanners, mercury pumps, pyrometers, bullion furnaces, amalgam cleaners, gold mining slime tables, blast furnace blowing engines, wrought iron tubing, butt or lap welded, threaded or coupled or not, less than $2\frac{1}{2}$ inches diameter, when imported for use exclusively in mining, smelting, reducing or refining."

And a duty of 25 p.c. was carried by a tariff item which was as follows in part:⁽³⁾

- "315. Steam engines, boilers, ore crushers and rock crushers, stamp mills, Cornish and belted rolls, rock drills, air compressors, cranes, derricks, percussion coal cutters, pumps, n.e.s. ... and all machinery composed wholly or in part of iron or steel, n.o.p."

(1) Acts of the Parliament of the Dominion of Canada, Ottawa 1890, Volume 1, Chapter 20, page 23.

(2) Ibid. 1897, Volume 1, Chapter 16, page 42.

(3) Ibid. page 26.

Between 1897 and 1924 changes were made from time to time in the list of mining machinery entitled to duty-free entry, and the goods were provided for in a larger number of tariff items. In 1906 the general rate on "machinery composed wholly or in part of iron or steel, n.o.p." was raised from 25 p.c. to $27\frac{1}{2}$ p.c. Substantial changes were made in the provisions for mining machinery in 1924. In that year some of the goods formerly duty-free and some formerly dutiable at $27\frac{1}{2}$ p.c. under the General Tariff were provided for in new tariff items some of which carried general rates of 5 p.c., some $12\frac{1}{2}$ p.c. and some 20 p.c.

The budget of May 1, 1930 contained a comprehensive revision of the tariffs on machinery, and many of the items in the present reference date from that time. In his budget speech on that date the Minister of Finance stated:⁽¹⁾

"The machinery section has been reworded and reclassified in a radical manner as regards arrangement, and with certain alterations in rates. Various generic groupings have been devised, notably: agricultural, mining..."

The more recent history of the rates carried by the tariff items in the present Reference is recorded in the following pages.

Tariff Item 399a

Pipes or tubes of iron or steel, commonly known as "oil-country goods", being casing or tubing and fittings or couplings therefor; sucker rods, pony rods, polished rods and couplings therefor; seismograph drilling bits, in sizes three and one-half inches to four and three-quarter inches inclusive; all of the foregoing for use in connection with natural gas or oil wells

<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
5 p.c.	10 p.c.	20 p.c.

April 1, 1960

Added: seismograph drilling bits, in sizes three and one-half inches to four and three-quarter inches inclusive;
Previously classified under item 848 (see below)

April 10, 1959

Added: sucker rods, pony rods, polished rods and couplings therefor; all of the foregoing...
Previously classified under item 848 (see below)

⁽¹⁾ Hansard, May 1, 1930, page 1627

June 18, 1958 (Introduced)
Previously classified under item
848 (see below)

Tariff Item 399c

Materials for use in the manufacture of the goods specified
in tariff items 399a and 399b

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
June 18, 1958 (Introduced) Previously classified under various items according to material	Free	Free	Free

Tariff Item 410a(i) GATT

Loading machines; shaker trough, belt trough, chain or
elevating conveyors; air engines; flame-proof enclosed
driving motors; of a class or kind not made in Canada,
and parts of all motive power or machinery mentioned in
this item, for use exclusively in mining operations

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 19, 1948 to present:	Free	Free	35 p.c.
May 2, 1930 to May 18, 1948: Face loading machines, shaker trough or belt trough conveyors, air engines, flame proof enclosed driving motors, of a class or kind not made in Canada, and integral parts of all motive power or machinery mentioned in this item, for use exclusively at the face in mining operations			

Free 10 p.c. 12½ p.c.

Tariff Item 410a(ii)

Trucks or tractors, self-propelled, mounted on wheels or
on endless tracks, including motive power, when of a class
or kind not made in Canada, for use exclusively underground
in mining operations; parts of the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 19, 1948 to present: Previously classified under tariff item 438a if trucks, at the following rates:	Free	Free	27½ p.c.
May 2, 1936 to May 18, 1948:	Free	17½ p.c.	27½ p.c.

Previously classified under
tariff item 409m if tractors
at the following rates:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1936 to May 18, 1948:	Free	Free	Free

Tariff Item 410a(iii) GATT

Diesel-powered self-propelled trucks, mounted on rubber-tired wheels or on rubber-tired wheels and half-tracks, side or rear dump, having a rated capacity by struck volume, of not less than $9\frac{1}{2}$ cubic yards and by payload weight, of not less than 15 tons, and complete parts thereof, for off-highway use in carrying minerals, ores, rock, stone, sand, gravel and other excavated materials at mines, quarries, gravel and sand pits or at construction sites

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
April 9, 1952 to present:	Free	$7\frac{1}{2}$ p.c.	$27\frac{1}{2}$ p.c.

June 6, 1951 to April 8, 1952:

Diesel-powered self-propelled trucks, mounted on rubber-tired wheels, side or rear dump, having a rated capacity by struck volume, of not less than $9\frac{1}{2}$ cubic yards and, by payload weight, of not less than 15 tons, and complete parts thereof, for off-highway use in carrying minerals, ores, rock, stone, sand, gravel and other excavated materials at mines, quarries, gravel and sand pits or at construction sites

	Free	$7\frac{1}{2}$ p.c.	$27\frac{1}{2}$ p.c.
May 19, 1948 to June 5, 1951:	Free	10 p.c.	$27\frac{1}{2}$ p.c.

Previously classified under
tariff item 438a at the
following rates:

May 2, 1936 to May 18, 1948:	Free	$17\frac{1}{2}$ p.c.	$27\frac{1}{2}$ p.c.
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Tariff Item 410a(iv) GATT

Mine car loaders, self-propelled, single-bucket type, the bucket of which loads at the front and moves over the loader to discharge at the rear, n.o.p., and parts thereof, for use exclusively in mining operations

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
June 30, 1956 to present:	Free	10 p.c.	35 p.c.
April 11, 1951 to June 29, 1956:	Free	$12\frac{1}{2}$ p.c.	35 p.c.

Previously classified under
tariff item 410a(i)

Tariff Item 410b

Machinery and apparatus for use in washing or dry cleaning coal at coal mines or coke plants; machinery and apparatus for use in producing coke and gas; machinery and apparatus for use in the distillation or recovery of products from coal tar or gas; parts of the foregoing, not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
February 26, 1937 to present (United Kingdom Trade Agreement):	Free	10 p.c.	12½ p.c.
May 2, 1930 to February 25, 1937:	7½ p.c.	10 p.c.	12½ p.c.

Tariff Item 410d

Well-drilling machinery and apparatus, and parts thereof, for use in drilling for water, natural gas or oil, or in prospecting for minerals, not including motive power; machinery and apparatus of a class or kind not made in Canada for maintenance and testing purposes in connection with gas or oil wells; well-packers and parts thereof, for oil or gas wells

<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Free	Free	Free

June 18, 1958

Deleted: seamless iron or steel tubing of a class or kind not made in Canada, for use in casing water, natural gas or oil wells
Subsequently classified under items 397, 397a or 399a

April 30, 1941

Added: machinery and apparatus of a class or kind not made in Canada for maintenance and testing purposes in connection with gas or oil wells;

February 26, 1937

Deleted: "of a class or kind not made in Canada" provision from: Well-drilling machinery and apparatus and complete parts thereof

Deleted: seamless iron or steel tubing over eight inches in diameter
Continued to be classified under this item as "apparatus", when for use in drilling

B.P.M.F.N.General

Added: seamless iron or steel tubing of a class or kind not made in Canada, for use in casing water, natural gas or oil wells

May 2, 1936

Deleted: packer rubbers for oil and gas wells

Added: well packers and complete parts thereof, for oil and gas wells

April 1, 1934

Added: packer rubbers for oil and gas wells

June 2, 1931

Changed: seamless iron or steel tubing over four inches in diameter to seamless iron or steel tubing over eight inches in diameter

May 2, 1930:

Well-drilling machinery and apparatus, and complete parts thereof, of a class or kind not made in Canada, seamless iron or steel tubing over four inches in diameter for use exclusively in drilling for water, natural gas and oil, and in prospecting for minerals, not to include motive power

Free

Free

Free

Tariff Item 410e

Rope twenty-one hundred feet and more in length, designed for use in drilling wells two thousand feet and more in depth and four inches or more in diameter, and for use in raising and lowering casing more than four inches in diameter for such wells, for use exclusively in drilling for water, natural gas and oil, and in prospecting for minerals

B.P.

M.F.N.

General

5 p.c.

5 p.c.

5 p.c.

February 26, 1937

Deleted: Well-drilling machinery and apparatus and complete parts thereof, and ...

Subsequently classified under item 410d (see above)

May 2, 1930 (Introduced)

Tariff Item 410f(1)

Machinery and appliances of iron or steel, of a class or kind not made in Canada, and elevators, and machinery of floating dredges, for use exclusively in alluvial gold mining; parts of all the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

The clause "parts of all the foregoing" was added on April 6, 1954. Prior to April 9, 1952 the item was numbered 410f.

Tariff Item 410f(2)

Complete dredging plant, including integrated floating and shore discharge pipeline and booster station equipment, for development of mineral deposits; parts of all the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
April 9, 1952 (Introduced) to present:	Free	Free	25 p.c.

Tariff Item 410g

Articles for use in the metallurgy or smelting of iron, namely: machinery and apparatus for sintering or nodulizing iron ore, concentrated or not, or flue dust; machinery and apparatus for use in the construction, equipment and repairs of blast furnaces for smelting iron ore, such machinery and apparatus to include hot blast stoves and burners, blast piping and valves connecting the blowing engines with the furnace, scale cars, charging and hoisting apparatus, blast furnace gas piping, cleaners and washers; parts of the foregoing, not including structural iron work, valves ten and one-half inches or less in diameter, nor pipes of iron or steel

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
June 18, 1958 to present:	Free	5 p.c.	5 p.c.

May 2, 1930 to June 17, 1958:

Articles for use exclusively in the metallurgy or smelting of iron, viz.: machinery and apparatus for sintering or nodulizing iron ore, concentrated or not, or flue dust; machinery and apparatus for use exclusively in the construction, equipment and repairs of blast furnaces for smelting iron ore, such machinery and apparatus to include hot blast stoves and burners, blast piping and valves, connecting the blowing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
engines with the furnace, scale cars, charging and hoisting apparatus, blast furnace gas piping, cleaners and washers; and parts of all the foregoing, but not to include wrought iron pipe or valves 10½ inches and under in diameter, nor structural iron work			

	Free	5 p.c.	5 p.c.
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Prior to April 11, 1951, the item specified "integral parts of all the foregoing" rather than "parts of all the foregoing".

Tariff Item 410h

Equipment and parts thereof for distributing stone dust in mines

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
June 30, 1948 to present:	Free	Free	10 p.c.
May 2, 1930 to June 29, 1948:	Free	5 p.c.	10 p.c.

Prior to April 11, 1951 the item specified "integral parts".

Tariff Item 410i(1)

Miners' rescue appliances, designed for emergency use in mines, where artificial breathing is necessary in the presence of poisonous gases, including high pressure oxygen pumps for use exclusively in connection with such appliances, and automatic resuscitation apparatus for artificial breathing to aid in the saving of human life, and parts of all the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

Prior to April 11, 1951 the item specified "integral parts of all the foregoing" instead of "parts... of all the foregoing".

Tariff Item 410i(2)

Combustible gas indicators, for detecting explosive gases or vapors; methane detectors; carbon monoxide detectors and continuous indicators and recorders; carbon monoxide alarms; pyrotannic detectors for determining the presence and quantity of carbon monoxide in the blood; inhalators for use in reviving victims of carbon monoxide poisoning; pocket gas respirators, dust respirators, paint and lacquer spray respirators, fume and smoke masks, and hose mask outfits complete with face piece, harness, air line and air pump or blower, designed for the protection of firemen and industrial workers; special safety goggles, designed for eye protection of miners, welders, foundrymen and other industrial workers employed in hazardous work; parts of all the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1936 to present:	Free	Free	Free

Prior to April 11, 1951 the item specified "complete parts of all the foregoing" instead of "parts of all the foregoing".

Tariff Item 410j GATT

Miners' acetylene lamps and parts thereof; miners' safety lamps and parts thereof; accessories for cleaning, filling, charging, opening and testing miners' lamps; battery renewal preparations for miners' electric safety lamps; all for use exclusively in mines

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

Prior to April 11, 1951 the item specified "complete parts thereof" instead of "parts thereof".

Tariff Item 410k

Machinery and apparatus, of a class or kind not made in Canada, for use exclusively in handling ore and other materials to be charged into a blast furnace or an electric smelting furnace, from the dock, car or stock pile, at the smelting works

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
April 6, 1955 to present:	Free	Free	Free

B.P. M.F.N. General

May 2, 1930 to April 5, 1955:

Machinery and apparatus, of a class or kind not made in Canada, for use exclusively in handling ore and other materials to be charged into the blast furnace, from the dock, car or stock pile, at the smelting works

Free Free Free

Tariff Item 410 1 GATT

Coal crushers, ore crushers, rock crushers, stamp mills, grinding mills, rock drills, percussion coal cutters, coal augers, rotary coal drills, n.o.p., and parts of all the foregoing, for use exclusively at mines, at quarries, or in metallurgical operations or in the beneficiation of non-ferrous ores

B.P. M.F.N. General

February 20, 1953 to present: 5 p.c. 15 p.c. 25 p.c.

April 11, 1951 to February 19, 1953:

Coal crushers, ore crushers, rock crushers, stamp mills, grinding mills, rock drills, percussion coal cutters, coal augers, rotary coal drills, n.o.p., and parts of all the foregoing, for use exclusively in mining, metallurgical or quarrying operations

5 p.c. 15 p.c. 25 p.c.

January 1, 1948 to April 10, 1951:

Ore crushers, rock crushers, stamp mills, grinding mills, rock drills, percussion coal cutters, coal augers, rotary coal drills, n.o.p., and complete parts of all the foregoing for use exclusively in mining, metallurgical or quarrying operations

5 p.c. 15 p.c. 25 p.c.

January 1, 1939 to December 31, 1947

(United States Trade Agreement): 5 p.c. 17½ p.c. 25 p.c.

February 26, 1937 to December 31, 1938: 5 p.c. 20 p.c. 25 p.c.

October 13, 1932 to February 25, 1937: 7½ p.c. 20 p.c. 25 p.c.

May 2, 1930 to October 12, 1932: 10 p.c. 15 p.c. 20 p.c.

Tariff Item ex 410 1 GATT

Inserts of tungsten carbide to be brazed to rock drills, when imported by manufacturers for use only in their own factories in the manufacture of hard metal-tipped rock drills

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
June 30, 1956 to present:	5 p.c.	7½ p.c.	25 p.c.
July 7, 1951 to June 29, 1956:	5 p.c.	10 p.c.	25 p.c.

Previously classified under tariff items 410 1, 427 and 711.

Tariff Item 410m(1) GATT

Diamond drills and core drills, not including motive power; electrically operated rotary coal drills; coal cutting machines; all of the foregoing for use in mining operations:

(1) of a class or kind made in Canada; parts thereof

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
March 15, 1957 to present:	Free	10 p.c.	10 p.c.

Prior to March 15, 1957 this item was numbered 410n, and was worded as follows:

Diamond drills and core drills, not including motive power, electrically operated rotary coal drills, and coal cutting machines, n.o.p., and parts of the foregoing, for use exclusively in mining operations

April 9, 1952 to March 14, 1957:	Free	10 p.c.	10 p.c.
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May 19, 1948 to April 8, 1952:

Diamond drills and core drills, not including motive power, and electrically operated rotary coal drills, n.o.p., and parts of the foregoing, for use exclusively in mining operations

Free	10 p.c.	10 p.c.
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October 13, 1932 to May 18, 1948:

Diamond drills and core drills, not including motive power; electrically operated rotary coal drills, and coal cutting machines, n.o.p., and integral parts of the foregoing, for use exclusively in mining operations

Free	10 p.c.	10 p.c.
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	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to October 12, 1932: Diamond drills and core drills, not including motive power, and electrically operated rotary coal drills, n.o.p., and integral parts of the foregoing, for use exclusively in mining operations	Free	10 p.c.	10 p.c.

Prior to October 12, 1932 coal cutting machines were provided for in tariff item 410o. From April 19, 1934 to January 1, 1935, tariff item 410n(ii) provided for:

Complete parts for repairs of the coal-cutting machines, n.o.p., enumerated in tariff item 410n, when imported prior to January 1, 1935, and when for use exclusively in repairing coal-cutting machines imported into Canada prior to January 1, 1933

Free Free Free

Tariff Item 410n(2)

Diamond drills and core drills, not including motive power; electrically operated rotary coal drills; coal cutting machines; all the foregoing for use in mining operations:

(1)

(2) Of a class or kind not made in Canada; parts thereof

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

Prior to March 15, 1957 the item was numbered 410m. Prior to May 18, 1948 coal cutting machines were not included in the item.

Tariff Item 410n

Tubes or shells to be inserted in the coal face for breaking down coal by the release of carbon dioxide or compressed air, and parts thereof

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
March 15, 1957 to present:	Free	Free	Free

Previously classified according to nature of product.

Tariff Item 4100(i)

Coal heading machines, electric or magnetic machines for concentrating or separating iron ores, automatic scales for use with conveyors, and parts of all the foregoing, for use exclusively in mining or metallurgical operations

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

Prior to April 7, 1954 the item provided for "integral parts" rather than parts. Prior to June 30, 1948 the item was numbered 4100. Prior to October 12, 1932 the item included "coal cutting machines, n.o.p."

Tariff Item 4100(ii)

Chock release apparatus, for use in coal mines to facilitate the safe removal of chocks forming the roof support

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 19, 1948 to present:	Free	Free	10 p.c.
March 23, 1935 to May 18, 1948:	Free	10 p.c.	10 p.c.
Previously classified under tariff item 446a at the following rates of duty:	15 p.c.	27½ p.c.	35 p.c.

Tariff Item 4100(iii)

Mine roof and wall supports and support systems, of metal, including yielding props or chocks, but not including roof bolts or washers or nuts therefor, for use underground in mines; parts of the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
April 1, 1960 to present:	Free	12½ p.c.	35 p.c.

Previously classified according to nature of product.

Tariff Item 410p

Sundry articles of metal as follows, for use exclusively in metallurgical operations, namely: furnaces for the smelting of ores; converting apparatus for metallurgical processes in metals; apparatus for chemical conversion, extraction, reduction or recovery, n.o.p., machinery for the extraction of precious metals by the chlorination or cyanide processes, not including pumps, vacuum pumps or compressors; blast furnace blowing engines for the production of pig iron; parts of the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
April 6, 1955 to present:	Free	Free	Free

May 14, 1953 to April 5, 1955:

Sundry articles of metal as follows, for use exclusively in mining and metallurgical operations, viz.: furnaces for the smelting of ores; converting apparatus for metallurgical processes in metals; apparatus for chemical conversion, extraction, reduction or recovery, n.o.p.; machinery for the extraction of precious metals by the chlorination or cyanide processes, not to include pumps, vacuum pumps or compressors; blast furnace blowing engines for the production of pig iron; parts of the foregoing

Free	Free	Free
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May 2, 1930 to May 13, 1953:

Sundry articles of metal as follows, for use exclusively in mining and metallurgical operations, viz.: furnaces for the smelting of ores; converting apparatus for metallurgical processes in metals; machinery for the extraction of precious metals by the chlorination or cyanide processes, not to include pumps, vacuum pumps or compressors; blast furnace blowing engines for the production of pig iron; and parts of all the foregoing

Free	Free	Free
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Prior to April 11, 1951 the item specified "integral parts of all the foregoing" instead of "parts of all the foregoing".

Tariff Item 410q

Pumps and vacuum pumps, and parts thereof, for use exclusively in the extraction of precious metals by the chlorination or cyanide processes, or in chemical conversion, extraction, reduction or recovery in metallurgical operations

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
February 20, 1953 to present:	15 p.c.	15 p.c.	20 p.c.

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 19, 1948 to February 19, 1953: Pumps and vacuum pumps, and parts thereof, for use exclusively in the extraction of precious metals by the chlorination or cyanide processes			
	15 p.c.	15 p.c.	20 p.c.
May 2, 1930 to May 18, 1948:	15 p.c.	17½ p.c.	20 p.c.
Prior to April 11, 1951 the item provided for "complete parts" rather than "parts".			

Tariff Item 410r

Power driven reciprocating pumps and parts thereof, designed for normal working heads of 400 feet and over, for use exclusively underground in mines

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	15 p.c.	25 p.c.	27½ p.c.
Prior to April 11, 1951 the item specified "complete parts" rather than "parts".			

Tariff Item 410s

Amalgam safes, automatic ore samplers, automatic feeders, retorts, mercury pumps, non-metallic heating elements, pyrometers, bullion furnaces, amalgam cleaners, and parts of all the foregoing, for use in mining or metallurgical operations

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
June 27, 1944 to present:	Free	Free	Free
May 2, 1930 to June 26, 1944: Amalgam safes; automatic ore samplers; automatic feeders; retorts; mercury pumps; pyrometers; bullion furnaces; amalgam cleaners; and integral parts of all the foregoing, for use exclusively in mining or metallurgical operations			
	Free	Free	Free

The phrase "integral parts" was retained until April 11, 1951.

Tariff Item 410t(1) GATT

Blowers, of iron or steel, for use in the smelting of ores, or in reduction, separation or refining of metals, ores or minerals; furnaces, rotary kilns and revolving roasters, of metal, for use in the roasting of ore, mineral, rock or clay; furnace slag trucks and slag pots:

(1) Of a class or kind made in Canada; parts thereof

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	12½ p.c.	17½ p.c.	20 p.c.

Prior to March 22, 1956 the goods specified in this item were provided for in tariff item 410u at the same rates. Prior to April 11, 1951 tariff item 410u specified "integral parts" instead of "parts".

Tariff Item 410t(2)

Blowers, of iron or steel, for use in the smelting of ores, or in reduction, separation or refining of metals, ores or minerals; furnaces, rotary kilns and revolving roasters, of metal, for use in the roasting of ore, mineral, rock or clay; furnace slag trucks and slag pots:

(1)

(2) Of a class or kind not made in Canada; parts thereof

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

Prior to April 11, 1951 the item specified "integral parts of all the foregoing" instead of "parts of all the foregoing".

Tariff Item 410v

Buddles, vanners, slime or concentrating tables and parts thereof, for use in mining and metallurgical operations

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

Prior to April 11, 1951 the item specified "integral parts" rather than "parts".

Tariff Item 410w

Machinery, n.o.p., for use in the concentration or separation of ores, metals or minerals, namely: Flotation machines, flotation cells, oil feeders and reagent feeders for flotation machines and flotation cells, pumps, vibrating and impact screens, jigs, filters, magnetic separators and magnetic pulleys; parts of all the foregoing

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
March 21, 1956 to present:	5 p.c.	7½ p.c.	20 p.c.

May 19, 1948 to March 20, 1956:

Machinery, n.o.p., for the concentration or separation of ores, metals or minerals, viz.: flotation machines, flotation cells, oil feeders and reagent feeders for flotation machines and flotation cells, pumps, vibrating and impact screens, jigs, magnetic separators, magnetic pulleys and filters, for use in the concentration or separation of ores, metals or minerals, and parts of all the foregoing

	5 p.c.	7½ p.c.	20 p.c.
May 2, 1930 to May 18, 1948:	15 p.c.	17½ p.c.	20 p.c.

Prior to May 19, 1948 the item specified "integral parts of all the foregoing" instead of "parts of all the foregoing".

Tariff Item 410x

Machinery, furnaces and appliances, of a class or kind not made in Canada, and parts thereof, for use in the refining of metals, and for the production of anodes, cathodes, blocks, slabs, pigs or ingots, in such refining processes

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 2, 1930 to present:	Free	Free	Free

Prior to April 11, 1951 the item specified "integral parts" instead of "parts".

Tariff Item 410y

Heavy duty mine hoists, of a size and capacity not made in Canada

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
May 19, 1948 to present:	Free	Free	10 p.c.
May 2, 1930 to May 18, 1948:	Free	5 p.c.	10 p.c.

Tariff Item 410z

Machinery and apparatus, n.o.p., and parts thereof, for the recovery of solid or liquid particles from flue or other waste gases at metallurgical or industrial plants, not including motive power, tanks for gas, valves ten and one-half inches or less in diameter, nor pipes of iron or steel

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
February 26, 1937 to present:	5 p.c.	10 p.c.	12½ p.c.
May 2, 1930 to February 25, 1937	7½ p.c.	10 p.c.	12½ p.c.

Prior to April 11, 1951 the item specified "and complete parts thereof" instead of "and parts thereof".

Tariff Item 442d

Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported for use in the manufacture of goods entitled to entry under tariff items 410a(iii), 410g, 410 l, 410m, 410o, 410p, 410q, 410s, 410t, 410v, 410w, 410x, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k and 447a, under such regulations as the Minister may prescribe

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
March 15, 1957 to present:	Free	Free	10 p.c.

May 14, 1953 to March 14, 1957:

Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported for use in the manufacture of goods entitled to entry under tariff items 410a(iii), 410g, 410 l, 410n, 410o, 410p, 410q, 410s, 410u, 410v, 410w, 410x, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k, and 447a, under such regulations as the Minister may prescribe

Free	Free	10 p.c.
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April 9, 1952 to May 13, 1957:

Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported by manufacturers of goods entitled to entry under tariff items 410g, 410 l, 410n, 410o, 410p, 410q, 410s, 410u, 410v, 410w, 410x, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k, and 447a, for use in the manufacture of such goods in their own factories; under such regulations as the Minister may prescribe

Free	Free	10 p.c.
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<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
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May 19, 1948 to April 8, 1952:

Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported by manufacturers of goods entitled to entry under tariff items 410g, 410 l, 410n, 410o, 410p, 410q, 410u, 410w, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 428h, 440k and 447a, for use in the manufacture of such goods in their own factories, under such regulations as the Minister may prescribe

Free	5 p.c.	10 p.c.
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Provided that materials and parts which are entitled to free entry or to a lower rate of duty than is specified in this item shall not be dutiable under this item.

April 26, 1939 to May 18, 1948:

Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada, when imported by manufacturers of goods entitled to entry under tariff items 410g, 410 l, 410n, 410o, 410p, 410q, 410u, 410w, 410z, 411, 411a, 411b, 427b, 428c, 440k and 447a, for use in the manufacture of such goods in their own factories, under such regulations as the Minister may prescribe

Free	10 p.c.	10 p.c.
------	---------	---------

Provided, that materials and parts which are entitled to free entry or to a lower rate of duty than is specified in this item shall not be dutiable under this item.

(Previously dutiable at various rates according to the nature of the goods).

Tariff Item 848

All machinery and apparatus and parts thereof (including motive power) and drilling mud, for use in exploratory or discovery work in connection with, and development, depletion and production of petroleum or natural gas wells

<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
-------------	---------------	----------------

Free	Free	Free
------	------	------

June 18, 1958

Deleted: sub-items (1), (2), (3) and (4) and substituted present wording

Subsequently classified as follows:

- (1) under 848, 399a or 399b
- (2) under 848a
- (3) under 397 or 397a
- (4) under 848b

B.P.M.F.N.General

April 7, 1954

Changed sub-item (2) to read:

(2) Machinery and apparatus and parts thereof (including motive power) of a class or kind not made in Canada and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

Added:

(3) Seamless, lapwelded and electric welded iron or steel casing, tubing and drill pipe, of a class or kind not made in Canada, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

(4) Materials for use in the manufacture of the goods enumerated in (1), (2) and (3) of this item

April 9, 1952

Deleted water wells from the end-use provisionAdded:

(2) Materials for use in the manufacture of the goods enumerated in tariff item 848(1)

May 19, 1948

Deleted rope from: (including motive power and rope)

January 1, 1944

Added: drilling mud

February 1, 1943 (Introduced)

All machinery and apparatus and parts thereof (including motive power and rope) for use exclusively in exploratory or discovery work in connection with, and development, depletion and production of petroleum, natural gas or water wells, or in prospecting for minerals; seamless, lapwelded and electric welded iron or steel casing, tubing and drill pipe for use in connection with water, natural gas or oil wells

Free

Free

Free

Previously classified under various items according to the nature and material

Tariff Item 848a

Machinery and apparatus and parts thereof (including motive power) of a class or kind not made in Canada and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines or for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt

<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Free	Free	Free

June 18, 1958 (Introduced)
Previously provided for in
part (2) of item 848 (see above)

Tariff Item 848b

Materials for use in the manufacture of the goods specified in tariff items 848 and 848a

<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Free	Free	Free

June 18, 1958 (Introduced)
Previously provided for in
part (4) of item 848 (see above)

Item 1047

Materials.

When used in the manufacture of articles enumerated in tariff item 410e

Drawback

May 2, 1930 to present:

99 p.c.

Item 1056

Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada.

When used in the manufacture of goods entitled to entry under tariff items 410a(iii), 410g, 410 l, 410m, 410o, 410p, 410q, 410s, 410t, 410v, 410w, 410x, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k and 447a.

Drawback

March 15, 1957 to present:

99 p.c.

July 28, 1954 to March 14, 1957:

Materials, including all parts, wholly or in chief part of metal, of a class or kind not made in Canada. When used in the manufacture of goods entitled to entry under tariff items 410a(iii), 410g, 410 l, 410n, 410o, 410p, 410q, 410s, 410u, 410v, 410w, 410x, 410z, 411, 411a, 411b, 427b, 427c, 427f, 428c, 428e, 440k and 447a.

Drawback

99 p.c.

See also tariff item 442d.

Item 1058

Materials.

When used in the manufacture of articles entitled to entry under tariff items 411 and 411a, not including saws, and articles entitled to entry under tariff item 410 l, when such articles are used as specified in said items.

Drawback

May 2, 1930 to present:

60 p.c.

Item 1059

Materials.

When used in the manufacture of articles entitled to entry under tariff items 410b and 410z when such articles are used as specified in said items

Drawback

May 2, 1930 to present:

70 p.c.

APPENDIX IX

Analysis of Proposals Made by
Machinery & Equipment Manufacturers'
Association of Canada

Analysis of Proposals Made by Machinery & Equipment
Manufacturers' Association of Canada

Existing Tariff Items to be Deleted (a)

Tariff Item	B.P.	M.F.N.	Imports 1961 (\$000)
----------------	------	--------	----------------------------

410a(i)	Free	Free)	(b)
410a(iv)	Free	10 p.c.)	

Replace in part by the following new items:
Loading machines, with built-in compressed
air motors or built-in certified flame-
proof enclosed electrical motors; of a
class or kind not made in Canada, and parts
of the foregoing, for use exclusively in
mining operations

Conveyors with built-in compressed air
motors or built-in certified flame-proof
enclosed electrical motors; and parts of
the foregoing, for use exclusively in
mining operations^(b)

(1) of a class or kind made in Canada
(2) of a class or kind not made in Canada

Remainder would be reclassified under
existing tariff items such as:

427a

B.P. M.F.N.

Free Free

10 p.c. 22½ p.c.
Free Free

Free 7½ p.c.

Existing Tariff Items to be Deleted

Approximate Disposition Under the Proposals

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports 1961 (\$000)</u>		<u>B.P.</u>	<u>M.F.N.</u>
410b	Free	10 p.c.	5,414(c)	Replace in part by the following new item: Coal cleaning machinery; screens, ore and coal processing; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	15 p.c. Free
410d	Free	Free	..	Remainder to be reclassified under existing tariff items such as: 427(1) and 446a 427a	10 p.c. Free	22½ p.c. 7½ p.c.
410f(1) 410f(2)	Free Free	Free) Free)	409	Replace largely by the following new item: Water well drilling rigs; parts of the foregoing (Other imports under tariff item 410d are believed to have been very small.) Goods would be reclassified under existing tariff items such as: 427(1) and 446a 427a 445g	Free Free	Free Free
					10 p.c. Free 15 p.c.	22½ p.c. 7½ p.c. 22½ p.c.

Existing Tariff Items to be Deleted

Approximate Disposition Under the Proposals

Tariff Item	B.P.	M.F.N.	Imports 1961 (\$000)		B.P.	M.F.N.
410g	Free	5 p.c.	689	Replace in part by the following new items: Metallurgical and metal melting furnaces, non-electric; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	12½ p.c. Free	17½ p.c. Free
				Remainder would be reclassified under existing tariff items such as: 427(1) and 446a 427a	10 p.c. Free	22½ p.c. 7½ p.c.
410k	Free	Free	44	Goods would be reclassified under existing tariff items such as: 427(1) and 446a 427a	10 p.c. Free	22½ p.c. 7½ p.c.
410 l	5 p.c.	15 p.c.	6,098	Replace largely by the following new items: Drill bits containing tungsten carbide	5 p.c.	15 p.c.
				Rock drills; coal drills; parts of the foregoing	5 p.c.	15 p.c.
				Rotary mills of the ball, rod, pebble and autogenous (Aerofall) types; parts of the foregoing	5 p.c.	15 p.c.
				Coal cutting machines; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	Free Free	10 p.c. Free

Existing Tariff Items to be Deleted

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports 1961 (\$000)</u>
--------------------	-------------	---------------	-----------------------------

410 1
(cont'd)

Ex 410 1	5 p.c.	7½ p.c.	813
410m(1)	Free	10 p.c.)	789
410m(2)	Free	Free)	

Approximate Disposition Under the Proposals

<u>B.P.</u>	<u>M.F.N.</u>
-------------	---------------

Roll-type crushers, jaw-type crushers and gyratory-type crushers; parts of the foregoing

5 p.c. 15 p.c.

Replace by the following new item:

Tungsten carbide inserts for drill bits

5 p.c. 7½ p.c.

Replace largely by the following new items:

Drill bits containing tungsten carbide

5 p.c. 15 p.c.

Coal cutting machines; parts of the foregoing

(1) of a class or kind made in Canada

(2) of a class or kind not made in Canada

Free 10 p.c.
Free Free

Diamond drills and core drills, not including motive power; parts of the foregoing

(1) of a class or kind made in Canada

(2) of a class or kind not made in Canada

Free 10 p.c.
Free Free

Diamond drill bits

(1) of a class or kind made in Canada

(2) of a class or kind not made in Canada

Free 10 p.c.
Free Free

Mining machines, including motive power, for extracting and loading materials directly from solid; of a class or kind not made in Canada, and parts of the foregoing, for use exclusively in mining operations

Free Free

Existing Tariff Items to be Deleted

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports 1961 (\$000)</u>
------------------------	-------------	---------------	-------------------------------------

4100(i) Free Free 285

Replace in part by the following new items:
Mining machines, including motive power,
for extracting and loading materials
directly from solid; of a class or kind
not made in Canada and parts of the
foregoing, for use exclusively in mining
operations

Free Free

Machinery, n.o.p., for concentrating or
separating ores, metals or minerals;
parts of the foregoing
(1) of a class or kind made in Canada
(2) of a class or kind not made in Canada

5 p.c.
Free 15 p.c.
Free

Remainder consisting of automatic scales,
would probably be classified under the
following existing tariff item:
461(1)

10 p.c. 20 p.c.

410p Free Free 4,895

Replace in part by the following new items:
Screens, ore and coal processing; ore
processing agitators, classifiers, filters,
flotation machines and thickeners; parts
of the foregoing
(1) of a class or kind made in Canada
(2) of a class or kind not made in Canada

5 p.c.
Free 15 p.c.
Free

Existing Tariff Items to be DeletedApproximate Disposition Under the Proposals

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports 1961 (\$000)</u>		<u>B.P.</u>	<u>M.F.N.</u>
410p (cont'd)				Metallurgical and metal melting furnaces, electric or non-electric; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	12½ p.c. Free	17½ p.c. Free
				Machinery, n.o.p., for concentrating or separating ores, metals or minerals; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	15 p.c. Free
				Remainder would be classified under existing tariff items such as: 427(1) and 446a 427a	10 p.c. Free	22½ p.c. 7½ p.c.
410q 410r	15 p.c. 15 p.c.	15 p.c. 25 p.c.	230) (d))	Goods would be reclassified under existing tariff items such as: 427(1) 427a	10 p.c. Free	22½ p.c. 7½ p.c.
410s	Free	Free	545	Replace in part by the following new items: Metallurgical and metal melting furnaces, electric or non-electric; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	12½ p.c. Free	17½ p.c. Free

Existing Tariff Items to be Deleted

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports</u> <u>1961</u> <u>(\$000)</u>
--------------------	-------------	---------------	---

410s
(cont'd)

Machinery, n.o.p., for concentrating or separating ores, metals, or minerals; parts of the foregoing
(1) of a class or kind made in Canada 5 p.c.
(2) of a class or kind not made in Canada Free 15 p.c.
Free

Remainder would be reclassified under existing tariff items such as:

461(1) 10 p.c.
427(1) and 446a 10 p.c.
20 p.c.
22½ p.c.

410t(1) 12½ p.c. 17½ p.c.) 367
410t(2) Free)

Replace in part by the following new item:
Blowers for use in the smelting of ores, or in reduction, separation or refining of metals, ores or minerals; parts of the foregoing

(1) of a class or kind made in Canada 12½ p.c.
(2) of a class or kind not made in Canada Free 17½ p.c.
Free

Metallurgical and metal melting furnaces, electric or non-electric; parts of the foregoing

(1) of a class or kind made in Canada 12½ p.c.
(2) of a class or kind not made in Canada Free 17½ p.c.
Free

Remainder would be reclassified under existing tariff items such as:

427(1) and 446a 10 p.c.
427a Free 22½ p.c.
7½ p.c.

Approximate Disposition Under the Proposals

B.P. M.F.N.

Existing Tariff Items to be Deleted

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports 1961 (\$000)</u>
--------------------	-------------	---------------	-----------------------------

410v	Free	Free	2,925
------	------	------	-------

410w	5 p.c.	7½ p.c.	1,385
------	--------	---------	-------

Approximate Disposition Under the Proposals

<u>B.P.</u>	<u>M.F.N.</u>
-------------	---------------

Replace by the following new item: Machinery, n.o.p., for concentrating or separating ores, metals or minerals; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	15 p.c. Free
---	----------------	-----------------

Replace in part by the following new items: Screens, ore and coal processing; filters, ore processing; flotation machines, ore processing; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	15 p.c. Free
--	----------------	-----------------

Machinery, n.o.p., for concentrating or separating ores, metals or minerals; parts of the foregoing (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	15 p.c. Free
---	----------------	-----------------

Remainder would be classified under existing tariff item such as: 427(1) 427a	10 p.c. Free	22½ p.c. 7½ p.c.
---	-----------------	---------------------

Existing Tariff Items to be Deleted

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports 1961 (\$000)</u>
--------------------	-------------	---------------	-----------------------------

410x	Free	Free	629
------	------	------	-----

Replace in part by the following new item:
Metallurgical and metal melting furnaces, electric of non-electric; parts of the foregoing
(1) of a class or kind made in Canada
(2) of a class or kind not made in Canada

12½ p.c.	17½ p.c.
Free	Free

Remainder would be reclassified under existing tariff items such as:
427(1)
446a

Free	7½ p.c.
10 p.c.	22½ p.c.

410y	Free	Free	(d)
------	------	------	-----

Goods would be classified under existing tariff items such as:
427(1) and 446a

10 p.c.	22½ p.c.
---------	----------

410z	5 p.c.	10 p.c.	508
------	--------	---------	-----

Replace by the following new item:
Machinery and apparatus, n.o.p., for the recovery of solid or liquid particles from flue or other waste gases; parts of the foregoing
(1) of a class or kind made in Canada
(2) of a class or kind not made in Canada

5 p.c.	15 p.c.
Free	Free

Existing Tariff Items to be DeletedApproximate Disposition Under the Proposals

<u>Tariff Item</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Imports 1961 (\$000)</u>		<u>B.P.</u>	<u>M.F.N.</u>
848a	Free	Free	..	Replace by the following new item: Machinery and apparatus and parts thereof (including motive power) and drilling mud, for use in the exploration, discovery, development and operation of potash and rock salt mines or, for use in the production of muriate of potash, or for use in the production of crushed and screened rock salt (1) of a class or kind made in Canada (2) of a class or kind not made in Canada	5 p.c. Free	10 p.c. Free
-	-	-	-	Add the following item: Electrically driven track or skid-mounted portable compressors, including motive power, and parts of the foregoing, for use exclusively underground in coal mining operations	Free	Free

- (a) In a number of instances, several proposed items have been combined for brevity. During the course of discussion at the public hearing, the spokesman for the Machinery & Equipment Manufacturers' Association of Canada modified his stand on some of the proposals. One such modification related to the treatment of parts; the spokesman for the Association indicated that he had intended parts of equipment to be made dutiable at the same rates as the equipment itself. Regarding loading machines, he withdrew his proposal that only those with built-in compressed air motors or built-in flame-proof electric motors should remain duty-free.
- (b) Imports under tariff items 410a(i) and 410a(iv) are known to have been valued at more than \$4 million in 1961.
- (c) Most of the imports under tariff item 410b are known to have consisted of equipment for natural gas processing plants, which were considered in Volume 1 of this Report.
- (d) Imports under this tariff item are known to be very small.



Report (by) of the Tariff Board
in
reference.

THE TARIFF BOARD

Relative to the Investigation Ordered

by the Minister of Finance

respecting

**OIL-SEEDS, VEGETABLE OILS
AND RELATED PRODUCTS**

RECEIVED

SEP 21 1964

Reference No. 131



Report by

THE TARIFF BOARD

Relative to the Investigation Ordered
by the Minister of Finance
respecting

**OIL-SEEDS, VEGETABLE OILS
AND RELATED PRODUCTS**

Reference No. 131

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Price subject to change without notice

ROGER DUHAMEL, F.R.S.C.

Queen's Printer and Controller of Stationery

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1963

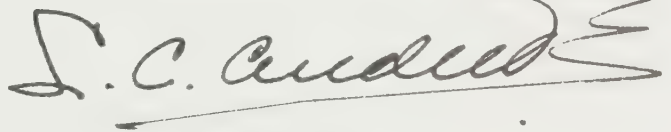
The Honourable Walter L. Gordon, P.C., M.P.
Minister of Finance
Ottawa

Dear Mr. Gordon:

I refer to Mr. Fleming's letter of January 3, 1961, in which he requested the Tariff Board to conduct an inquiry respecting oil-seeds, vegetable oils and related products.

In conformity with Section 6 of the Tariff Board Act, I have the honour to transmit the Report of the Board relating to oil-seeds, vegetable oils and related products, in English and in French. A copy of the transcript of the proceedings at the public hearings accompanies this Report.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "D.C. Audette", with a stylized flourish at the end.

Chairman

THE TARIFF BOARD

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F.L. Corcoran, Q.C.
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Léo Gervais
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Second Vice-Chairman
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Member
Member
Member

J.E. Gander
Director of Research

Ann A. Morrison
Secretary

PANEL FOR THIS INQUIRY

G.H. Glass, presiding
E.C. Gerry
W.D.R. Eldon*

Economist: J.W. Morrow, Assistant Director of Research

* Dr. Eldon resigned from the Tariff Board February 1, 1963.

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Explanation of Symbols Used

- Denotes zero or "none reported"
- .. Indicates that figures are not available
- * Indicates a reported figure which disappears on rounding
- (a) A small letter in brackets denotes a footnote to a table
- (1) A number in brackets denotes a footnote to the text
- s.c. Denotes an import statistical class

THE TARIFF BOARD

Reference No. 131

An Inquiry Respecting Oil-Seeds, Vegetable
Oils and Related Products

The text of the letter from the Minister of Finance, dated January 3, 1961, directing the Tariff Board to conduct an inquiry respecting oil-seeds, vegetable oils and related products, is as follows:

"As I indicated in my supplementary Budget Speech of December 20th, the Government has received numerous representations respecting the provisions in the Customs Tariff for oil-seeds, vegetable oils and certain related products. Because of the diverse views expressed concerning the appropriate rates of duty, and of the wide interchangeability of these products for a number of uses, I am of the opinion that it would be desirable for the Tariff Board to make a thorough study of this matter.

I, therefore, direct the Tariff Board to make a study and report, under section 4(2) of the Tariff Board Act, on the following items in Schedule "A" of the Customs Tariff:

The following items in their entirety:-

47	259a	276e
47a	259b	276f
68	259c	276g
70	266a	663c
73a	266b	Ex.711 (Peanut oil cake
109a	276a	and peanut oil
113a	276b	cake meal)
114	276c	824
258	276d	839

The following items in so far as they relate to vegetable oil-seeds, vegetable oils or vegetable oil cake and oil meal:- 72d, 73, 76g, 77, 277, 585a, 663d, 711.

If the Board's study should indicate that amendments to the Customs Tariff are desirable, I would request the Board to prepare a revised schedule of tariff items, with recommendations as to rates of duty."

A public hearing before the Board was held at Ottawa on January 15, 16, 17 and 18, 1962. Representations were made to the Board by the following companies, associations and other interested parties:

Alberta Edible Oil Seed Growers, Warner, Alta.
 Canada Linseed Oil Mills Limited, The, Montreal, P.Q.
 Canada Packers Limited, Toronto, Ont.
 Canada Starch Company Limited, The, Montreal, P.Q.
 Canadian Feed Manufacturers National Association, Toronto, Ont.
 Canadian General Electric Company Limited, Toronto, Ont.
 Canadian Paint Varnish and Lacquer Association Incorporated,
 Montreal, P.Q.
 Canadian Vegetable Oil Processing Limited, Hamilton, Ont.
 Colgate-Palmolive Limited, Toronto, Ont.
 Consumers' Association of Canada, Ottawa, Ont.
 Co-Op Vegetable Oils Limited, Altona, Man.
 Emery Industries (Canada) Limited, London, Ont.
 Fisheries Council of Canada, Ottawa, Ont.
 Harchem Limited, Toronto, Ont.
 Lever Brothers Limited, Toronto, Ont.
 Maple Leaf Mills Limited, Toronto, Ont.
 Maritime Federation of Agriculture, The, Moncton, N.B.
 Minnesota Mining and Manufacturing of Canada Limited, London, Ont.
 National Farmers Union, Saskatoon, Sask.
 Nopco Chemical Canada Limited, London, Ont.
 Ontario Poultry Council, Toronto, Ont.
 Ontario Soya-Bean Growers' Marketing Board, Chatham, Ont.
 Procter & Gamble Company of Canada, Limited, Toronto, Ont.
 Reichhold Chemicals (Canada) Limited, Weston, Ont.
 Rapp, Mr. Reynold, M.P., Spalding, Sask.
 Sherwin-Williams Co. of Canada, Limited, The, Montreal, P.Q.
 Surrey Co-operative Association, Cloverdale, B.C.
 Swift Canadian Company Limited, Toronto, Ont.
 Tanners Association of Canada, Toronto, Ont.
 Victory Soya Mills Limited, Toronto, Ont.

THE PRODUCTS AND THE PRODUCERS

The Products

The products which fall within the scope of the present Reference are oleaginous materials of vegetable origin, vegetable oils, and vegetable oilcake and oilcake meal.

The oleaginous materials considered in this Report, often described collectively as oil-seeds, comprise a variety of seeds and nuts which are commercially important sources of oil and, in most cases, of oilcake and other products as well. Vegetable oils are traded both in the crude form and in various processed forms. Some consumer products such as salad and cooking oils are pure vegetable oils; however, by far the greatest volume of vegetable oils are sold as materials to be further manufactured into final products. Oilcake, often ground into meal, is a co-product of oil-seed processing; it is used principally in animal feeds.

Oil-Seeds

Canada has played a significant role in the oil-seed markets of the world in recent years. The farm value of production, which was very small in the 1930's, amounted to \$85 million in 1961. Canada has become the world's leading exporter of flaxseed and one of the leading exporters of rape seed. Whereas most of Canada's domestic requirements of edible vegetable oils were imported as crude oils prior to World War II, such imports are now exceeded by the production in Canada of crude oils from domestically grown and imported oil-seeds.

Vegetable Oils

Vegetable oils are herein taken to include vegetable fats; oils are liquid at room temperature and fats are not. In 1961 about 425 million pounds of vegetable oils were consumed in Canada; this constituted some 40 per cent of the total consumption of animal, marine and vegetable oils. In the same year, the value of factory shipments of vegetable oils, mostly in crude form, by the oil-seed processors amounted to \$32 million, and the excess of imports over exports of crude and refined vegetable oils amounted to \$23 million. Consumption amounted to 401 million pounds in 1962.

Edible products, principally margarine, shortening and salad and cooking oils, account for about three fourths by volume of vegetable oil consumption. The average Canadian family uses about 60 pounds of vegetable oils annually for food and spends between one and two per cent of its food budget on them.

The principal inedible products containing vegetable oils are paints and varnishes, linoleum and oilcloth, soaps, plastics and chemicals.

Consumption of Vegetable Oils, By Uses
(000 pounds)

<u>Uses</u>	<u>1951</u>	<u>1959</u>	<u>1960</u>	<u>1962</u>
<u>Edible Uses</u>				
Margarine	80,509	105,530	116,178	94,143
Shortening	77,412	91,306	91,271	102,050
Refined cocoanut oil	13,472	13,853	12,410	20,149
Salad and cooking oils	19,937	45,675	57,264	68,894
Total	191,330	256,364	277,123	285,236
<u>Inedible Uses</u>				
Paints	45,465	40,144	39,733	..
Oilcloth and linoleum	13,643	17,747	13,702 ^(a)	..
Soaps, toilet and cleaning preparations	19,986	13,778	12,505	..
Plastics	1,707	9,682	9,626	..
Miscellaneous and heavy chemicals	6,192	7,801	9,794	..
Other	4,157	1,963	1,691	..
Total	91,150	91,115	87,051	..
<u>Unaccounted for</u>	31,353	54,621	43,303	116,097
<u>Total Consumption</u>	313,833	402,100	407,477	401,333

(a) Estimated

Source: Dominion Bureau of Statistics

Prior to the present century North Americans depended almost entirely upon butter, lard and other animal products for edible oils and fats. The present wide-spread use of vegetable oils in margarine and shortening is largely a result of technological developments in processing. Towards the end of the last century efficient methods of hydrogenation, by which the melting point of a fat can be raised, were discovered. These discoveries widened the range of animal, vegetable and marine oils which could be used in the manufacture of margarine and shortening, both of which must be solid at room temperatures. However, before substantial use could be made of soya bean oil and other oils with low melting points there were other problems to be solved and North America was for many years heavily dependent upon tropical oils such as cocoanut, palm and palm kernel, which have relatively high melting points. These latter oils are frequently referred to as hard oils. During the 1930's great technical progress was made in the processing of cotton seed, soya bean and other oils which have low melting points and can be grown on this continent. Laws in the United States and Canada prohibiting or restricting the sale of margarine have been modified over the years. Liquid salad and cooking oils have also become increasingly acceptable to North American consumers. These and other factors have contributed to an increase in the cultivation of oil-seeds and the use of vegetable oils in North America.

Technical developments in processing have increased not only the interchangeability of the various vegetable oils but also the interchangeability of marine, vegetable and animal oils. Few if any of the vegetable oils used in large quantities in Canada are irreplaceable; however, some oils which must be imported possess characteristics distinctive enough to make it very difficult to replace them in some applications. The table on the following page summarizes the principal uses of most of the vegetable oils which are commercially important in Canada.

In their principal uses the soft edible oils are to a large extent interchangeable; the demand for each of them is strongly influenced by price and availability. Corn oil, while suitable for a wide range of applications, is relatively expensive and is used mainly as a salad and cooking oil. Soya bean oil is attractive both in price and in characteristics for use in margarine and shortening. Cottonseed oil is highly desirable both in margarine and shortening and as a salad and cooking oil. The processing of rapeseed oil is still in the developmental stage and the volume used in North America is relatively small. However it is gaining increasing acceptance in the manufacture of margarine and shortening and as a salad and cooking oil.

Dependence on the hard edible oils has been reduced by technological developments, but they remain almost irreplaceable in some applications. Palm oil was described at the public hearing as an essential hardstock in shortening, and it is also used in margarine and soap. Palm kernel oil and cocoanut oil, unlike other oils, have a high lauric acid content which makes them particularly suitable for certain uses. They have unique properties required in the manufacture of soaps, fatty acids and certain chemicals, and are used in place of the more expensive cocoa butter in confectioners' coatings for biscuits and candy.

Of the inedible oils, linseed is used in far the greatest volume in Canada. It possesses highly desirable characteristics as a drying oil for use in paints, linoleum and oilcloth; however, it is meeting increasing competition from several quarters. Alkali refined soya bean oil has come into increasing use in the manufacture of paints; tung oil is also suitable for use in certain paints. Moreover, vinyl floor coverings, which are not made from vegetable oils, are now competing with linoleum, thus reducing the demand for linseed oil.

Oilcake

The growth of the oil-seed processing industry in North America over the past thirty years resulted in large supplies of oilcake becoming available. Oilcake has become a major factor in the nourishment of poultry and other farm animals in North America. Poultry and swine producers and, to a somewhat lesser extent, the cattle raisers, have become increasingly dependent upon scientifically prepared feeds containing vegetable oilcake and other ingredients rich in proteins. In 1960 the purchases of oilcake by the feed manufacturers in Canada amounted to \$25 million.

Vegetable Oils and their Principal Uses

<u>Type of Oil</u>	<u>Principal Uses</u>
<u>Soft Edible Oils</u>	
Soya bean	Margarine, shortening, paints
Rapeseed	Salad and cooking oils, margarine, shortening, lubricants
Cottonseed	Salad and cooking oils, margarine, shortening, synthetic resins
Peanut	Cooking oils, margarine, shortening
Sunflower	Salad and cooking oils, margarine, shortening
Safflower	Margarine, shortening, paints
Olive	Salad and cooking oils
Corn	Salad and cooking oils
Sesame	Salad and cooking oils, margarine, shortening
Mustard	Salad and cooking oils, margarine, shortening
<u>Hard Edible Oils</u>	
Palm	Margarine, shortening, soap
Palm kernel	Margarine, shortening, confectionary coating, soap
Cocoanut	Margarine, shortening, cooking fats, soap
<u>Inedible Oils</u>	
Linseed	Paints, linoleum, oilcloth, inks
Tung (chinawood)	Paints, oilcloth, linoleum
Castor	Paints, oilcloth, linoleum, medicinals
Perilla	Paints, linoleum
Cashew nut shell	Alkaloids and resins
Oiticica	Paints

The Producers

The Growers

In 1961 Canadian farmers devoted some three million acres to the cultivation of flaxseed, rape seed, soya beans and other oil-seeds. In the same year the total farm value of oil-seed crops amounted to \$85 million, a little less than three per cent of total farm cash income.

The cultivation of oil-seeds in Canada is, with the exception of flaxseed, of comparatively recent origin. There was a shortage of oils during World War II, and oil-seed production in Canada was encouraged by the Government through price incentives and research. After the war market conditions at home and abroad, and the creation of modern crushing facilities in Canada, fostered the growth of oil-seeds. Statistics of production in recent years are contained in the table on the following page.

Flaxseed, with a farm value in the order of \$50 million, is still by far the most important oil-seed crop in terms of quantity and value; between two and three million acres have been devoted to it in recent years. It is grown principally in the wheat growing regions of the Prairie Provinces, and the acreage planted varies widely from year to year according to the market outlook for flax in relation to the outlook for wheat and other grains. Output in the crop year 1912-13 was not surpassed in size until the crop year 1956-7. During most of the 1930's production was insufficient to meet Canadian requirements. In more recent years output has far exceeded consumption, most of the crop being exported.

Rape seed, which has achieved a farm value of \$18 to \$20 million in recent years, is cultivated mainly in the grain growing areas of the Prairie Provinces, doing particularly well in the more northerly regions; 710,000 acres were devoted to it in the crop year 1961-62. Like flaxseed, the amount grown is highly sensitive to the market outlook for grains. As a consequence, rape seed acreage has fluctuated substantially from year to year. Most of the crop is exported to Europe, although the use of rapeseed oil by Canadian manufacturers of vegetable oil products has been increasing.

The production of soya beans rose rapidly between 1943 and 1955; since 1957 it has remained at about 6.5 million bushels annually, having a value of \$12 to \$15 million. Virtually all of it is grown in the counties of Kent, Essex, Lambton, Elgin and Middlesex in Southern Ontario. Climatic and soil conditions have apparently not proven favourable for the economic production of existing varieties of soya beans elsewhere in Canada.

The Ontario Soya-Bean Marketing Board, which represented the soya bean growers of Ontario at the public hearing, estimated that there were about 12,000 growers who devoted an average of about 25 per cent of their arable land, or about 250,000 acres, to the cultivation

Canadian Production of Oil-Seeds

Crop Year Ending July 31	Flaxseed		Soya beans		Rapeseed		Mustard Seed		Sunflower Seed		(a) Safflower	
	Volume mil.bu.	Farm Value \$ mil.	Volume mil.bu.	Farm Value \$ mil.	Volume mil.lbs.	Farm Value \$ mil.	Volume mil.lbs.	Farm Value \$ mil.	Volume mil.lbs.	Farm Value \$ mil.	Volume mil.lbs.	Farm Value \$ mil.
1940	2.0	2.9	..	..	..	..	..	..	..	..	..	..
1948	13.8	72.4	1.1	3.4	21.9	..	..	16.0	..	..	..	..
1949	18.4	70.2	1.8	4.2	64.0	..	..	23.2	..	..	..	..
1950	2.2	7.4	2.6	5.9	17.0	0.9	..	25.5	..	..	..	..
1951	5.0	17.2	3.3	8.5	0.1	*	..	9.9	..	..	..	..
1952	9.9	38.6	3.8	10.6	6.0	0.2	..	7.5	0.3	..	..	..
1953	12.3	38.7	4.1	10.5	13.9	0.5	..	1.9	0.1	..	..	..
1954	9.9	24.2	5.0	12.3	24.6	0.9	..	6.2	0.3	..	..	..
1955	11.0	28.0	4.8	11.5	28.9	1.0	0.9	14.9	0.6	..	..	..
1956	19.0	52.7	6.0	12.5	77.9	2.8	2.2	16.3	0.7	..	..	..
1957	35.0	89.6	5.3	11.4	299.8	10.5	5.1	17.6	0.8	..	..	..
1958	19.2	48.6	6.5	12.7	433.1	13.7	2.5	12.0	0.5	6.8	..	..
1959	22.3	58.6	6.6	12.5	388.1	9.8	2.5	22.1	1.1	25.0	..	..
1960	17.2	52.7	6.8	12.8	178.0	7.1	1.9	32.4	1.1	..	..	..
1961	22.5	61.9	5.0	11.2	556.0	18.1	2.2	29.2	1.3	..	..	..
1962	14.3	47.6	6.6	14.9	561.0	20.2	1.4	24.1	1.1	..	..	..
1963	15.7	..	6.6	..	318.0	..	72.9	17.4	..	..	..	..

(a) While production of safflower seed since 1958-9 is not available it is known to have declined.
Less than 3,000 acres, mainly in Saskatchewan, were planted in 1961.

Source: Dominion Bureau of Statistics

of soya beans. The greater part of the crop is usually sold to the three crushing plants in Ontario, but it is insufficient to meet their needs and large quantities of soya beans are imported by them. Part of the Canadian crop is exported to the United Kingdom where it is accorded preferential tariff treatment.

Mustard seed is grown in the southern part of Alberta and in Manitoba. It is grown largely under contract and most of the crop is exported. Some of the varieties grown are suitable for oil extraction while others are used mainly for the manufacture of condiments.

Sunflower seed is grown principally in the southern part of Manitoba. Co-Op Vegetable Oils Limited, which represented the growers at the public hearing, estimated that about half the crop was used as bird seed or as confectionery for human consumption and the other half was crushed for oil and meal. In the early 1950's, the growers encountered severe reverses stemming from flood and a rust epidemic. At the time of the public hearing, however, production had returned to earlier levels, and the spokesman for Co-Op Vegetable Oils Limited expressed the belief that there would be further increases in output.

The cultivation of safflower was introduced into Canada a few years ago, and production mostly in Saskatchewan and Alberta, reached a peak of 25 million pounds in the crop year 1958-9. Production has since declined to almost negligible proportions, but work is in progress on the development of new varieties of seed more suitable to Canadian climatic conditions, and safflower may yet prove to be a valuable dry land crop in the Canadian West. Safflower seed is highly regarded as a source of oils for human consumption and for the manufacture of paints.

The Processors

The principal stages in the conversion of oil-seeds into oilcake and oil are the crushing of oil-seeds and the refining and further processing of vegetable oils.⁽¹⁾ Crushing consists of a variety of operations designed to convert oil-seeds into oilcake and crude oils. The oilcake, usually ground into meal, is sold principally to manufacturers of livestock feeds. There are some outlets for crude oils; crude linseed oil, for example, is used in the manufacture of linoleum and oilcloth.

To meet the requirements of most uses, however, crude oils must be treated in a variety of ways. The processors often distinguish between refining and further processing. Refining usually involves the removal of impurities which affect appearance and taste; some refined oils are suitable for use as salad or cooking oils without further processing. Further processing generally involves more substantial changes in the chemical or physical properties of the oil. The process of hydrogenation, for example, is used to raise the melting points of oils to be used in the manufacture of margarine and shortening.

(1) Additional details of processing techniques are contained in Appendix IV.

The crushing of oil-seeds is done by four groups of firms in Canada. Three firms in Ontario crush edible oil-seeds, principally soya beans. Another three firms in the Prairie Provinces crush a variety of edible oil-seeds. Two other companies in Ontario convert corn into oil, starch and other products. Five firms process flax-seed at various locations in the Central Provinces and the Prairies.

The processing of oil-seeds and vegetable oils is centred largely in Ontario although there are processors located in Quebec, the Prairie Provinces and British Columbia as well. The oils processed in Ontario and Quebec are used by manufacturers in those provinces to produce margarine, shortening, linoleum, paints and other products which are sold throughout Canada. In addition, most of the exports of oil-seed products are from Quebec and Ontario.

East of the Prairies the crushing of edible oil-seeds is done by the following three firms:

Canadian Vegetable Oils Processing Limited, Hamilton
Maple Leaf Mills Limited, Toronto
Victory Soya Mills Limited, Toronto

The three eastern crushers have a combined capacity of some 1,400 or 1,500 tons of edible oil-seeds per day, or more than four fifths of the Canadian total. Prior to World War II the amount of edible oil-seed crushing done in Canada was very small. During the war and in the years immediately thereafter, facilities for crushing were expanded to handle the Ontario soya bean crop and to crush copra, peanuts or whatever other edible oil bearing materials were available. In recent years edible oil-seed crushing capacity in Ontario has expanded considerably although it is now entirely restricted to the crushing of soya beans. In addition to crushing Canadian soya beans, the crushers import large quantities from the United States to meet both their domestic and external markets for soya bean products.

The principal products of the soya bean crushers are oil-cake, crude and degummed oil, and lecithin, which is a by-product of the degumming process. In addition, Maple Leaf Mills Limited converts a substantial part of its output of crude soya bean oil to alkali refined soya bean oil, which is sold mainly to manufacturers of paints and other manufacturers of alkyd resins. The plant of Victory Soya Mills probably ranks among the largest and most efficient on the continent. The other two plants in Ontario are considerably smaller, their combined crushing capacity being less than that of Victory Soya Mills Limited.

The refining and further processing of edible oils is of much earlier origin in Canada than the crushing of edible oil-seeds. For many years manufacturers of meat products and soaps have been processing imported crude cottonseed, palm, peanut, cocoanut and other vegetable oils for use in the manufacture of shortening, confectionary butters and other products. These firms have become the principal buyers of Canadian produced crude soya bean oil. At the present time a large part of the Canadian production of refined and further processed edible vegetable oils is accounted for by the following firms:

Procter and Gamble Company of Canada, Limited, Hamilton,
 Ontario, and Pointe Claire, P.Q.
 Canada Packers Limited, Montreal, Toronto, Winnipeg,
 Edmonton and Vancouver
 Lever Brothers Limited, Toronto
 Swift Canadian Company Limited, Toronto

These firms refine and further process Canadian and imported edible oils for their own use in the production of margarine, shortening and salad and cooking oils and also for sale to other manufacturers of edible oil products which do not have refining or further processing facilities. Toronto and Hamilton are the largest centres of edible oil refining in Canada. The refinery of Procter and Gamble at Hamilton is the largest in the country and is the largest supplier of refined and further processed oils to other manufacturers of edible oil products. While Procter and Gamble produces shortening and other products containing vegetable oil it does not produce margarine.

In the Prairie Provinces there are the following three processors of edible oil-seeds:(1)

Co-Op Vegetable Oils Limited, Altona, Man.
 Saskatchewan Wheat Pool, Saskatoon, Sask.
 Western Canadian Seed Processors Limited, Lethbridge, Alta.

Each of these three plants is equipped to crush oil-seeds and to process vegetable oils in various ways. With a combined crushing capacity of about 300 tons of edible oil-seeds per day, they provide an outlet for the sunflower seed and some of the rape seed and other edible oil-seeds being produced on the Prairies. Rapeseed oil is produced in all three plants. The plant at Altona is equipped for crushing, refining and some further processing; it processes Canadian sunflower seed and rape seed as well as soya beans imported from the United States. The plant at Lethbridge, which only commenced production in 1961, is fully equipped for refining and further processing; it has concentrated on the processing of rape seed and sunflower seed. The plant at Saskatoon is engaged in the processing of rape seed and flaxseed. There has been a market on the Prairies for all the products of sunflower seed and soya beans which have been produced. While the production of rape seed meal has been disposed of, some difficulties have been experienced in the marketing of rapeseed oil.

There are the following two manufacturers of corn oil in Canada:

The Canada Starch Company Limited, Cardinal, Ontario
 The St. Lawrence Starch Company Limited, Port Credit, Ontario

(1) Another processor, Agra Vegetable Oil Products Limited, has recently established a plant at Saskatoon, Sask.

These two firms process corn into a variety of products including corn starch, corn syrup and corn oil. Corn oil is expelled from the corn germ which becomes available in the production of corn starch. Corn only contains about three per cent by weight of oil, and the amount produced depends primarily upon the demand for corn starch. The processors do, however, supplement their supplies of corn oil by importing crude which they refine.

Flaxseed is processed by the following firms in Canada:

The Canada Linseed Oil Mills Limited, Montreal and Toronto
 Maple Leaf Mills Limited, Toronto
 The Sherwin-Williams Company of Canada Limited, Montreal and
 Winnipeg
 Saskatchewan Wheat Pool, Saskatoon
 Alberta Linseed Oil Company Limited, Medicine Hat

These firms produce crude linseed oil and linseed oilcake from flaxseed, and they treat linseed oil in a variety of ways to meet the requirements of particular uses. The industry is dependent principally on the Canadian market, although there are some exports of both oil and meal.

Montreal and Toronto are the largest centres of flaxseed processing. The plants at these points are well located to serve the principal Canadian and foreign markets. The linoleum and oil-cloth industry is located in Quebec, and many of the largest paint plants are located in Quebec and Ontario.

While flaxseed is the only inedible oil-seed processed in Canada, the attention of the Board was directed to a number of firms which process imported crude inedible oils. There are a number of firms which produce hydrogenated, dehydrated and blown castor oil and castor oil fatty acids. The paint industry imports substantial quantities of china wood oil, otherwise known as tung oil. Minnesota Mining and Manufacturing of Canada Limited produces resins with special properties from imported cashew nut shell oil.

Principal Statistics

About one thousand persons are estimated to be directly employed in the crushing of oil-seeds and the treatment of vegetable oils. A large proportion of the edible oil refining and further processing is carried out by the manufacturers of meat products, corn starch, soaps, margarine, shortening and other products, much of it for their own use. Moreover, the refineries are often engaged in the processing of animal and marine oils as well as of vegetable oils. The refiners and further processors of vegetable oils cannot, therefore, be distinguished as a separate industry. However, the principal statistics of the soya bean crushers, the three crusher-refiners on the Prairies, and the flaxseed processors have been as follows:

<u>Year</u>	<u>Establish- ments</u> (number)	<u>Employees</u> (number)	<u>Cost of Materials</u> (\$000)	<u>Value Added by Manufacture</u> (\$000)	<u>Gross Value of Shipments</u> (\$000)
1956	12	672	37,108	5,444	42,239
1957	11	656	50,899	8,925	60,952
1958	11	614	45,503	8,157	53,795
1959	10	625	46,989	9,915	57,677
1960	11	555	49,377	9,157	59,242
1961	12	537	53,983	8,725	62,675

Source: Dominion Bureau of Statistics

Of the total value of shipments in 1961, \$30 million consisted of oilcake, \$23 million of crude oils, \$8.4 million of refined oils and \$0.5 million of other products. The greater part of the crude oils shipped were destined for further processing. In addition, imports of vegetable oils in crude form amounted to an estimated \$15 million in 1961.

Altogether, when account is taken of the value added by the further processing of imported and domestically produced oils, the total value of output of oilcake and vegetable oils was probably in the vicinity of \$90 million in 1961.

THE MARKET

The Supply of Oil-seeds and Vegetable Oils

The Canadian supply of oil-seeds and vegetable oils consists of oil-seeds grown in Canada and of imports of oil-seeds and vegetable oils. Since the oil content of each variety of oil-seed is known, the production of oil-seeds and the imports and exports of oil-seeds and vegetable oils can all be recorded in terms of oil. The table on the following page shows Canadian production, imports and exports of oil-seeds and oils for selected years.

Whereas Canada was almost entirely dependent upon imports of crude oils in the 1930's, production of oil-seeds has increased very substantially since that time. In recent years exports, principally as seeds, have exceeded imports of oils and oil-seeds by a considerable margin. The variety of oil-seeds grown in Canada is very limited, however, and the favourable balance of trade has resulted from the increase in exports rather than any decline in imports. The export and import of oil-seeds and vegetable oils is thus a very important feature of the overall market situation in Canada. Expressed in terms of oil content, this international movement of oil-seeds and vegetable oils has, in recent years, been twice as great as the apparent consumption in Canada. The volume of exports alone has been equal to 90 per cent of Canada's production of oil-seeds. The large crops of flaxseed in recent years have provided very large surpluses of inedible oil-seeds for export. Canada still has a substantial net deficiency in edible oils; production and exports of edible oil-seeds have, nevertheless, increased rapidly in recent years.

In addition to exports of flaxseed, Canada exports a very large part of its production of edible oil-seeds and depends largely upon imports of edible oil-seeds and crude oils to meet domestic requirements. The development of this trade has been due largely to conditions in the market for rape seed and soya beans. While the Canadian Prairies provide excellent conditions for the cultivation of rape seed, rapeseed oil has not, as yet, been used extensively in North America. Moreover, since rape seed now qualifies for Crow's Nest Pass freight rates, it can be shipped to ocean ports much more cheaply than to Canadian processing plants, even those on the Prairies. For example, whereas the rate on export shipments from Saskatoon to Vancouver is $25\frac{1}{2}$ cents per hundred pounds, the rate from Swan River, Manitoba to the crushing plant at Altona, Man. is 63 cents. The use of rapeseed oil in Canada has, none the less, been increasing and there is every reason for expecting this trend to continue. In the case of soya beans, there are usually substantial exports of Canadian soya beans and soya bean products to the United Kingdom. Domestic requirements of soya bean products are met largely by imports of soya beans and soya bean meal from the United States. This trade pattern is primarily due to the fact that soya beans and soya bean meal may be imported into Canada duty-free under the Most-Favoured-Nation Tariff, whereas Canadian soya beans and soya bean products are accorded preferential tariff treatment by the United Kingdom.

Production, Imports and Exports of Vegetable Oils and Oil-seeds
(millions of pounds oil content)

	Crop Years Ending July 31			
	1951-2	1955-6	1960-1	1961-2
<u>Production of Oil-seeds</u> ^(a)	214	423	628	495
Flaxseed	172	330	394	249
Edible oil-seeds ^(b)				
Soya beans	34	55	45	60
Rape seed	2	24	170	172
Mustard seed	4	10	12	8
Sunflower seed	2	4	7	6
Total	42	93	234	246
<u>Imports of Oils and Oil-seeds</u>	204	280	335	354
Inedible ^(b)				
Flaxseed and linseed oil	13	22	*	*
Other inedible oils	7	10	7	8
Total	20	32	7	8
Edible				
Soya beans	43	84	125	135
Soya bean oil	15	26	26	17
Copra	35	13	-	-
Cottonseed oil	60	33	44	34
Cocoonut oil	14	36	50	57
Peanut oil	2	3	5	14
Palm and palm kernel oil	5	35	38	48
Other	11	18	40	41
Total	185	248	328	346
<u>Exports of Oils and Oil-seeds</u>	87	291	463	458
Inedible				
Flaxseed	56	210	270	232
Linseed oil	17	16	15	9
Total	73	226	285	241
Edible				
Rape seed	*	16	138	112
Soya beans	-	15	14	37
Soya bean oil	-	-	14	59
Mustard seed	5	8	10	6
Other	10	27	2	3
Total	15	65	178	217

(a) Ten per cent of the farm output of oil-seeds has been deducted as an arbitrary allowance for dockage, wastage and seed requirements. The actual amounts used for seed and other purposes vary considerably. The Board was informed that an allowance of twenty per cent for flaxseed would probably have been justified. A substantial part of the sunflower seed crop, perhaps as much as one half, is sold as bird seed and confectionery. Mustard seed is used in the production of condiments as well as of oil.

(b) The edible oils are taken to include all those which are normally used for human consumption, although most of them have industrial uses as well. The inedible oils are taken to be linseed, china-wood, castor, perilla and oiticica, although some of them may be used for human consumption either as foods or for medicinal purposes.

Source: Based on statistics published by the Dominion Bureau of Statistics.

Of the imports of oil-seeds and oils into Canada, soya beans and soya bean oil have accounted for nearly half the total in recent years. Most of the remainder has consisted of cottonseed oil, peanut oil, cocoanut oil and palm and palm kernel oil. Whereas relatively little soya bean oil was used in the 1930's, it is now used in larger quantities than any other vegetable oil. Imports of inedible vegetable oils, while important to the users, constitute a small part of total imports and supply of oils. This reflects the availability of linseed oil from the large Canadian production of flaxseed.

Of the inedible oils, while only flaxseed is produced from seed in Canada, it is by far the most important in terms of volume consumed. Other inedible oils, most of which are used in relatively small quantities, are imported either as crude oils or refined.

In value terms, Canada's balance of trade in oil-seeds and primary oil-seed products in recent years has been favourable. Total exports of oil-seeds, vegetable oils and oilcake were valued at \$97 million in 1962 and imports at \$84 million.

Supply and Consumption of Vegetable Oils

The table on the following page contains details of production, imports and exports of vegetable oils. From the table it will be noted that in recent years the aggregate supply of vegetable oils has amounted to some 450 million pounds of which about 50 million pounds has been exported, leaving about 400 million pounds of vegetable oils, valued at about \$60 million, to meet domestic requirements. Trends in the market affecting the crushers of edible oils, the refiners of edible oils and the producers of linseed oil are discussed separately in the pages which follow.

The Crushers of Edible Oil-Seeds

Production of edible vegetable oils by Canadian crushers has been of the order of 180 to 200 million pounds with a commercial value of about \$20 million in recent years. Sales by Canadian edible oil-seed crushers are directly affected by imports and exports of both crude and refined edible oils and by total Canadian consumption of all edible oils.

In the period since 1951 there have been substantial increases in the consumption of edible vegetable oils in Canada. Imports have continued to supply about half of this consumption and production has nearly doubled through the period to supply the balance of domestic and export markets.

Soya bean oil has in recent years constituted 80 to 90 per cent by volume of the edible oil output of the crushers and something less than 50 per cent of the total market for edible oils. In the late 1940's and early 1950's peanuts and copra were crushed in fairly

The Market for Vegetable Oils
(million pounds)

	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
<u>Production by Crushers</u> (a)												
<u>Edible</u>												
Soya bean oil	73.5	80.2	90.6	99.8	115.5	136.0	140.4	147.6	170.3	185.1	162.9	181.3
Other	42.2	44.5	21.6	39.8	18.9	29.7	31.6	21.1	11.3	11.7	23.4	29.4
Total	115.8	124.6	112.1	139.6	134.4	165.6	172.0	168.7	181.6	196.8	186.2	210.7
<u>Inedible</u>												
Linseed oil	60.4	74.9	92.8	64.9	66.6	72.1	74.2	72.8	57.0	52.0	57.1	45.4
<u>Imports of Oils</u>	157.3	135.3	162.3	176.8	174.7	164.0	159.8	198.3	193.6	186.7	233.3	203.7
<u>Edible</u>												
Cottonseed oil	30.8	65.7	48.2	55.8	27.9	33.3	30.3	25.5	37.3	45.8	41.6	33.3
Soya bean oil	19.2	15.7	23.1	17.8	23.7	25.8	22.9	30.2	29.8	34.7	21.1	19.3
Cocoonut oil	15.0	15.8	34.8	17.1	31.9	38.9	31.1	46.7	39.7	35.5	58.0	54.4
Palm and palm kernel oil	11.6	8.4	28.5	54.1	43.5	36.3	39.2	40.5	31.7	18.2	52.3	36.2
Peanut oil	27.4	1.8	2.2	2.2	16.5	2.2	4.8	21.6	10.2	7.1	9.4	18.8
Oils hydrogenated, blown	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	12.9	16.8	19.0	11.6
Other	28.6	16.8	16.3	21.4	19.7	17.3	21.6	23.9	20.2	20.1	23.3	22.7
Total	132.7	124.1	153.0	168.3	163.2	153.8	150.0	188.5	181.8	178.2	224.7	196.2
<u>Inedible</u>												
Linseed oil	14.7	2.0	.1	.3	.2	1.2	.1	.2	1.0	.4	.1	.2
Castor oil	5.2	3.5	4.9	3.5	6.5	5.0	5.7	4.8	5.9	4.6	5.1	3.8
Chinawood oil	4.4	5.2	4.1	4.5	4.5	3.4	3.7	4.7	4.8	3.1	2.9	2.6
Oiticica oil	.3	.2	.1	.1	.2	.4	.2	.1	*	.1	.5	.7
Cashew nut shell oil	<u>.1</u>	<u>.2</u>	<u>.1</u>	<u>.1</u>	<u>.2</u>	<u>.1</u>	<u>.1</u>	<u>.1</u>	<u>.1</u>	<u>.2</u>	<u>.1</u>	<u>.1</u>
Total	24.6	11.2	9.2	8.5	11.6	10.2	9.8	9.9	11.8	8.4	8.6	7.5

The Market for Vegetable Oils (Cont'd)
(million pounds)

	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
<u>Exports of Oils</u>	19.6	28.4	42.9	22.6	49.1	60.9	63.4	46.6	30.2	28.1	51.9	58.4
<u>Edible</u>	..	..	..	..	..	38.5	39.2	28.3	26.6	20.0	30.0	50.6
Soya bean oil	..	..	..	..	..	6.1	6.0	1.5	.2	.3	.7	.7
Rapeseed oil	7.7	8.1	12.4	19.5	40.4	1.1	.7	1.3	.5	1.2	1.4	2.6
Other	7.7	8.1	12.4	19.5	40.4	45.6	45.9	31.1	27.3	21.5	32.1	54.0
<u>Total</u>												
<u>Inedible</u>	12.0	20.3	30.5	3.1	8.6	15.3	17.5	15.5	2.9	6.6	19.8	4.4
Linseed oil												
<u>Available for consumption</u>	313.8	306.4	324.3	358.7	326.7	340.8	342.6	393.2	402.1	407.5	424.8	401.3
<u>Edible</u>	240.8	240.6	252.8	288.4	257.2	273.8	276.1	326.0	336.1	353.6	378.8	352.9
<u>Inedible</u>	73.0	65.8	71.6	70.3	69.5	67.0	66.4	67.2	66.0	53.9	46.0	48.4

(a) Excludes production of crude corn oil; imports of crude corn oil are included under "other" edible imports.
 (b) Prior to 1959, hydrogenated and blown vegetable oils were classified according to kind, for example, soya bean oil or peanut oil.

Source: Dominion Bureau of Statistics

large quantities. More recently, rape seed and sunflower seed have been the principal edible oil-seeds other than soya beans which have been crushed. The exports of edible oils have consisted largely of crude soya bean oil sold to the United Kingdom.

The Canadian crushers supply a very large part of the Canadian market for the kinds of oils they offer. In 1962, Canadian production of soya bean oil amounted to 181 million pounds, imports are recorded as having amounted to 19 million pounds, and exports amounted to 51 million pounds. In addition to the recorded imports, 12 million pounds of hydrogenated and blown vegetable oils were imported; a substantial part of these may well have consisted wholly or partly of soya bean oil. Of the 19 million pounds of soya bean oil recorded as imports, a substantial part, perhaps half, consisted of alkali refined soya bean oil which is used in the manufacture of alkyd resins for paints and other products. In addition, several million pounds of refined soya bean oil are known to have been imported by the fish packing industry. Soya bean oil for use in paints and in fish packing can be entered free of duty.

Most of the imports of other vegetable oils have consisted of kinds which, while different from those produced in Canada, are competitive with them in many applications. In such applications, decisions as to which oils to use are strongly influenced by relative prices. For example, between 1960 and 1962 the price of soya bean oil rose relative to the prices of peanut, palm, palm kernel and cocoanut oils; there was a noticeable increase in imports of those latter oils and a decline in consumption of soya bean oil. The effects of competition from other oils used in the manufacture of margarine and shortening has been particularly marked since 1960, as the following table shows.

Consumption of Vegetable and Marine Oils
in Margarine and Shortening
(000 pounds)

Year	Soya Bean Oil	Palm Oil and Palm Kernel Oil	Cottonseed Oil	Other Vegetable Oils(a)	Marine Oils
1957	85,433	29,567	18,733	22,704	43,447
1958	105,927	33,255	12,496	33,949	36,547
1959	137,673	22,003	18,600	20,601	18,156
1960	153,789	15,735	23,289	14,636	19,912
1961	111,535	36,622	18,087	36,121	48,506
1962	107,373	32,275	10,564	45,981	69,845

(a) Includes cocoanut, sunflower seed, peanut and rape seed oils.
Source: Dominion Bureau of Statistics

The domestic sales of the Canadian crushers are affected, not only by imports of edible oils, but also by competition from animal and marine oils and from inedible vegetable oils. For example, part of the increase in the use of soya bean oil is due to the fact that it has been replacing linseed oil in the manufacture of some paints and varnishes. The total Canadian supply and disposition of animal, vegetable and marine oils and fats is summarized in the table on the following page.

Oils and Fats Available for Consumption
(million pounds)

Av.1934-7

	<u>1951</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
<u>Inclusive</u>									
<u>Vegetable Oils and Fats</u>									
<u>Production</u>									
Linseed oil	33.1	60.4	66.6	72.1	74.2	72.8	52.0	57.1	45.4
Soya bean oil	..	73.5	115.5	136.0	140.4	147.6	185.1	162.9	181.3
Other	<u>3.9</u>	42.2	18.9	29.7	31.6	21.1	11.7	23.4	29.4
Total	36.9	176.1	201.0	237.7	246.2	241.5	248.9	243.4	256.0
<u>Imports of Oils</u>	200.8	157.3	174.7	164.0	159.8	198.3	186.7	233.3	203.7
<u>Exports of Oils</u>	6.1	19.6	49.1	60.9	63.4	46.6	28.1	51.9	58.4
<u>Available for consumption</u>	231.6	313.8	326.7	340.8	342.6	393.2	402.1	424.8	401.3

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Animal Oils, Fats and Greases

<u>Production</u>									
Fat content of butter	283.3	230.2	269.9	257.1	256.1	281.7	272.8	292.8	299.6
Lard	69.8	120.9	125.6	125.9	112.0	140.6	181.7	130.2	123.5
Tallow	37.9	87.8	136.4	152.9	159.2	165.3	190.5	205.7	201.4
Other	<u>28.4</u>	11.9	18.4	19.9	22.5	21.2	18.5	11.7	10.3
Total	419.4	450.9	550.3	555.8	549.8	608.8	663.5	640.4	634.8
<u>Imports</u>	15.5	68.6	28.4	43.2	52.0	28.2	26.2	52.2	55.0
<u>Exports</u>	33.0	8.1	47.8	53.1	61.4	55.8	112.1	99.2	96.4
<u>Available for consumption</u>	402.0	511.4	530.9	545.9	540.3	581.2	577.6	593.4	593.5

Oils and Fats Available for Consumption (Cont'd)
(million pounds)

	<u>Av.1934-7</u>	<u>1951</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
<u>Inclusive</u>										
<u>Marine Oils</u> (a)										
<u>Production</u>	31.4	66.3	58.2	66.0	42.3	63.0	59.4	32.8	54.2	53.2
<u>Imports</u>	8.0	2.1	22.7	4.5	4.1	15.4	6.1	11.9	33.6	44.2
<u>Exports</u>	17.5	36.8	23.7	22.3	8.1	15.3	34.3	30.6	8.8	7.7
<u>Available for consumption</u>	21.8	31.6	57.3	48.2	38.3	63.2	31.2	14.1	78.9	89.7
<u>Total Supply of Oils and Fats</u>	655.5	856.9	914.9	934.9	921.2	1,037.5	1,010.9	977.9	1,097.1	1,084.5

(a) Based partly on statistics supplied by Department of Fisheries.
Source: Based on statistics published by the Dominion Bureau of Statistics except where otherwise stated.

The consumption of vegetable oils as a proportion of total consumption of oils and fats has not changed a great deal since the 1930's and now represents about 40% of the total. While there has been a proportionate decline in the consumption of butter in favour of margarine and vegetable cooking oils, the growth in consumption of meats has resulted in a rapid increase in the supply of lard and tallow. The consumption of marine oils has fluctuated widely and no secular trend is apparent.

The Refiners of Edible Oils

Total production of refined and further processed edible vegetable oils is estimated to have been as follows:

<u>Year</u>	<u>Production</u> (millions of pounds)
1955	204
1956	217
1957	203
1958	235
1959	247
1960	264
1961	266

Source: Based on a questionnaire distributed by the Board.

The production of 266 million pounds of refined and further processed oils would have a commercial value in the order of \$35 to \$40 million.

Of this total production of 266 million pounds in 1961, approximately 145 million pounds were retained by the refiners for the production of margarine, shortening and other finished products. The remainder, amounting to some 121 million pounds, was sold to other processors or packers of refined oils and oil products such as margarine, shortening, salad and cooking oils and paints.

Statistics of exports of refined and further processed oils are not available but exports are believed to be small.

Imports of refined and further processed vegetable oils are believed to come almost entirely from the United States; exports from that country to Canada have been as follows:

Exports From the U.S.A. to Canada of Refined and
Further Processed Vegetable Oils
(thousands of pounds)

<u>Year</u>	<u>Cottonseed</u>	<u>Soya Bean</u>	<u>Peanut</u>	<u>Cocoanut</u>	<u>Other</u>	<u>Total</u>
1955	1,483	19,685	59	228	10,790	32,245
1956	1,300	21,084	97	442	9,571	32,494
1957	2,022	20,895	490	303	11,064	34,774
1958	2,390	25,542	23	288	13,970	42,213
1959	2,254	29,142	5	303	13,072	44,776
1960	7,185	29,219	15	1,010	19,194	56,623
1961	7,900	17,697	16	823	19,720	46,156
1962	1,848	17,315	40	123	15,308	34,634

Source: United States Exports of Domestic and Foreign Merchandise,
United States Department of Commerce

The figures in the above table include exports to Canada of alkali refined soya bean oil which are estimated to have amounted to seven million pounds in 1961. Deducting this amount - which is used principally in the manufacture of alkyd resins for paints - imports of refined and further processed vegetable oils directly competitive with Canadian refined edible oils amounted to around 40 million pounds in 1961 and perhaps 25 million pounds in 1962.

Thus, of the total market for refined and further processed edible vegetable oils amounting to approximately 306 million pounds in 1961, something less than 15 per cent by volume was imported. If the 145 million pounds of oil produced by the refiners and retained for their own use is deducted, then the imports of 40 million in 1961 were equivalent to about a quarter of the oils sold on the open market in Canada, and imports in 1962 amounted to a lesser percentage.

Some of these imports, perhaps 17 or 18 million pounds of the 40 million pounds imported in 1961, consisted of oils imported duty-free under end use items such as that for the fish packing industry, and of hydrogenated oils imported into British Columbia for the manufacture of margarine and shortening. The manufacturers of food products in British Columbia import a high proportion of their requirements of oils because of the high costs of freight from Eastern Canada. In 1961, imports into British Columbia of further processed oils, entered under tariff item 277, amounted to 12.4 million pounds. Some of the remaining imports of refined and further processed vegetable oils are made by manufacturers which have refining capacity in Canada and some by manufacturers which do not have refining capacity.

Imports of edible oil products such as margarine, shortening and salad and cooking oils packaged for retail trade were stated by the refiners to have been small. Imports of margarine, except into Newfoundland, are prevented by the provisions of Item 1204 of Schedule C of the Customs Tariff. A spokesman for the refiners stated:

"In the case of shortening and salad oils, packaged for retail sale, substantial sales and distribution expense enter into the price of the product. Thus, the oil represents a smaller proportion of total cost than on bulk industrial products and we have been able to compete effectively on these items, although there is a small continuing flow of packaged shortening from the United States."(1)

The Producers of Linseed Oil

Linseed oil is the only inedible oil which is processed from seed in Canada, and it is used in by far the largest quantities. In 1962, of total apparent consumption of 48 million pounds of inedible oils in Canada, 41 million pounds consisted of linseed oil which would have a commercial value of over \$5 million.

Production of linseed oil amounted to 60 million pounds in 1951, reached a peak of 93 million pounds in 1953, and amounted to 45 million pounds in 1962. The high level of output in 1953 was due to exceptionally large exports, which have fluctuated considerably from year to year. Between 1952 and 1958 production showed no upward trend and since 1958 it has been appreciably lower than in earlier years. This reflects a decline both in domestic consumption and in exports. Consumption amounted to 63 million pounds in 1951 compared with 41 million pounds in 1962. Among the factors contributing to this decline have been the increasing use of soya bean oil by the paint industry and the growth in popularity of vinyl floor coverings and plastic table coverings in place of linoleum and oilcloth. Imports of linseed oil have been very small in recent years.

The Market for Vegetable Oilcake

Consumption of oilcake in Canada in recent years has varied between 450,000 and 500,000 tons with a commercial value in the order of \$30 million. The statistics of the market for vegetable oilcake are summarized in the table on the following page. Production has about doubled since 1951, and consumption has increased even more rapidly.

Canadian production of oilcake has been somewhat lower than consumption in recent years; whereas about half the volume of Canadian production has been exported, imports have been even larger. In most years imports of soya bean oilcake have exceeded exports, while the reverse has generally been true of linseed oilcake and other oilcake including rapeseed and sunflower seed oilcake. Most of the exports of oilcake have been to the United Kingdom and most of the imports have come from the United States. This pattern of trade is for the most part due to the fact that there are no duties on imports of oilcake into Canada and the United Kingdom accords preferential tariff treatment to Canadian oilcake. In addition, most of the Canadian production of oilcake takes place in Ontario and Quebec, and the western provinces can obtain their supplies more cheaply from the mid-western parts of the United States.

(1) Official Report (of proceedings at the Public Hearing on Reference 131; henceforth cited as Official Report), January 17, 1962, pages 324-5

The Market for Vegetable Oilcake
(000 tons)

	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
<u>Canadian Production</u>												
<u>Linseed oilcake</u>	54	64	78	56	58	62	63	65	50	45	51	41
Soya bean oilcake	178	190	207	226	265	306	320	331	383	400	361	408
Other oilcakes	<u>13</u>	14	9	16	11	15	14	13	9	9	20	23
Total	245	268	294	298	333	383	396	409	442	454	432	472
<u>Imports</u>												
<u>Linseed oilcake</u>	11	3	1	22	12	10	3	*	*	1	*	*
Soya bean oilcake	33	16	33	41	105	216	183	145	249	192	198	276
Other oilcakes	<u>*</u>	*	2	5	1	*	*	3	1	1	5	1
Total	44	20	35	68	118	226	186	148	250	194	204	276
<u>Exports</u>												
<u>Linseed oilcake</u>	9	7	34	25	34	34	30	17	15	11	16	13
Soya bean oilcake	44	43	74	64	149	247	229	86	196	195	133	218
Other oilcakes	<u>3</u>	3	2	5	4	2	4	1	1	*	1	1
Total	56	54	110	94	187	284	262	104	211	207	150	231
<u>Domestic Disappearance</u>												
<u>Linseed oilcake</u>	56	59	45	53	36	38	36	48	36	36	35	28
Soya bean oilcake	167	163	166	203	220	275	273	390	436	396	426	465
Other oilcakes	<u>10</u>	11	9	16	8	13	10	14	9	9	25	23
Total	233	233	220	272	264	326	319	452	481	441	486	517

Source: Dominion Bureau of Statistics

The balance of production and consumption varies considerably in the different regions of Canada. There is little or no production in British Columbia, although consumption is significant, mostly supplied by imports. In the Prairie Provinces, while production has been increasing, imports supplied about 40 per cent by weight of requirements in 1961. In the provinces east of Manitoba, while production is more or less equivalent to total consumption, there are large exports which are offset by imports.

Estimated Consumption of Oilcake, by Regions
(thousands of tons)

	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
<u>British Columbia and Prairie Provinces</u>				
Production	28	32	28	37
Imports	44	52	42	45
Consumption	72	84	70	83
<u>Other Provinces</u>				
Production	381	411	426	394
Imports	104	198	152	159
Exports	107	212	207	150
Consumption	378	397	370	403

Agricultural interests pointed out that the net deficit in soya bean oilcake is considerably larger if net imports of soya beans are taken into account. The excess of imports over exports of soya beans amounted to about 336,000 tons in 1962; this is equivalent to about 268,000 tons of soya bean oilcake. At present, both soya beans and soya bean oilcake are entered free of duty.

There is, of course, a large net surplus of all oil-seeds in Canada when account is taken of farm output of flaxseed and rape seed, most of which are exported as seed. The oilcakes from such oil-seeds are not regarded as entirely interchangeable with soya bean oilcake. Thus, even if these oil-seeds were all crushed in Canada and the oilcake made available to Canadian farmers, the user of soya bean oilcake would still be dependent upon imports for part of his supply.

REPRESENTATIONS AND OTHER CONSIDERATIONS

Representations were received principally from the following groups of interests:

- The growers of edible oil-seeds
- The crushers of edible oil-seeds
- The refiners of edible oils
- The flaxseed processors
- Other processors of inedible oils
- Various consumer interests

In broad terms the growers of edible oil-seeds sought protection and they proposed compensatory increases in the duties on the products of the crushers and refiners. The various processing interests, while proposing a number of tariff adjustments, were primarily concerned with the maintenance of existing margins of protection for their products. Representatives of such interests as poultry and livestock producers, feed manufacturers, paint manufacturers, fish packers, tanners and consumers of household products opposed increases in duties.

The positions taken by these various interests are outlined in the pages which follow.

The Growers

Representations by the Growers

The soya bean growers in Ontario, the sunflower seed growers in Manitoba and a substantial proportion of the rape seed growers in the Prairie Provinces all sought protection for their crops. In so doing they found it necessary to propose the imposition of duties on competing oil-seeds not grown in Canada and on oilcake, and to propose increases in the existing duties on edible vegetable oils.

The Ontario Soya-Bean Growers' Marketing Board presented a brief on behalf of the soya bean growers. The Marketing Board, which operates under the Farm Products Marketing Act of Ontario, indicated that it represented all the soya bean growers of the Province, some 12,000 in number. The activities of the Board were described by its spokesman as involving sales promotion and negotiations of various kinds on behalf of the growers. The Marketing Board is not a buyer or seller of soya beans nor, according to its spokesman, had it been successful in negotiating prices.

The proposals of the Marketing Board are recorded and analysed in Appendix VII. The Marketing Board sought a British preferential and a most-favoured-nation duty of one half cent per pound on soya beans, and related increases in the duties on most other oil-seeds, vegetable oils and oilcakes.

The aims of the proposals by the Marketing Board apparently were to provide higher returns to the growers and to make Canada self-sufficient, at least in so far as soya beans are concerned. The following statements are from the brief of the Marketing Board:

"The proposed tariff amendments submitted by this organization suggest a tariff on all raw materials related to vegetable oils and protein meals and on protein meals and vegetable oils in such manner as to protect the present crushing industry in Canada, and giving an incentive to the production of Canada's requirements of vegetable oils and protein meals within its boundaries.

.....

"The present structure allowing the free importation of soya-beans, cottonseed and peanuts place the Canadian production of soya-beans on the world market in competition with the excess production of countries capable of taking every advantage to dispose of their surpluses, in many cases in spite of the actual needs of their own citizens for a higher fat intake in their diets, in order to acquire dollars with which to trade. The excess production created in the United States by government support programs, we do not feel establishes a free trading price, although it cannot be established that actual dumping in Canada occurs.

"In the past, excess of supplies of peanut oil have depressed the price of soya-beans in Canada because of the manipulation of peanut oil exports by the Indian government. Recent government programs in Peru have released large supplies of fish meal in the Canadian market at sufficiently depressed prices to reduce the demand for soya-bean meal in Canada."(1)

The spokesman for the Marketing Board contended that, given a price incentive, the acreage devoted to soya beans in Ontario could be doubled by the displacement of corn and other crops, and that production on the Prairies would become possible as well.

Many of the growers of sunflower seed and rape seed in Manitoba were represented by Co-Op Vegetable Oils Limited, Altona, Manitoba. The Co-operative has about 3,500 members which include about 90 per cent of the sunflower seed growers and two thirds of the rape seed growers of the Province. It acts as an oil-seed marketing agent for its members, and it has a crushing and refining plant where some of the oil-seeds of its members are processed. In addition, a substantial volume of imported soya beans are processed in the plant. While the Co-operative has interests as a crusher and refiner, its spokesman emphasized that its primary interest was in enabling its members to market their oil-seeds in the most advantageous way.

(1) Official Report, January 15, 1962, pages 4 and 9

The proposals of the Co-operative are reported and analysed in Appendix VIII. Like the soya bean growers in Ontario, the Co-operative sought duties on the oil-seeds grown by its members, on other oil-seeds and on oilcake, and increased duties on vegetable oils. The spokesman for the Co-operative indicated that, while his proposals were designed to maintain approximately the existing duty margins between oil-seeds and oil-seed products, he would not object if other crushing and refining interests proposed different rates for oil-seed products. He stated:

"Furthermore, the proposed rates would maintain the existing tariff advantage of imported soybeans over direct imports of soybean oil and meal. With an extraction yield of 10.2 pounds oil and 48 pounds meal per bushel of soybeans, the proposed tariffs would amount to 55.2¢ on direct imports of oil and meal per bushel equivalent as compared to 30¢ on soybeans. The current 20 per cent ad valorem tariff basis 11¢ per pound on soybean oil would amount to 22.4¢ per bushel equivalent compared to free entry of soybeans."(1)

The spokesman for the Co-operative based his proposals, not so much on the efficacy of duties in themselves, but rather on the need to counter the duties imposed by other countries on Canadian goods. He stated:

"Lack of growth and the depressed condition of the edible oilseed industry in Canada results largely from gross tariff inequalities which allow free entry of a wide range of edible oilseeds and oilseed products without reciprocating advantage to Canadian exports, and from subsidized oilseed production in most exporting as well as importing countries.

"Manitoba oilseed producers would be favourably inclined to equalization of tariffs on oilseeds and oilseed products at the lowest possible level between Canada and its major suppliers of these products. Such a proposal appears unfeasible, however, at this time since it involves lowering of foreign tariffs against present and potential exports of oilseeds and oilseed products from Canada. There seems to be only one solution to this difficult problem and that is to raise the tariff on imported oilseeds and oilseed products to a level where Canada could negotiate on more equal terms for a downward revision of tariffs now imposed on oilseed exports from this country."(2)

With regard to rape seed, he expressed the view that duties would be conducive to greater price stability in Canada. With regard to sunflower seed, he contended that duties would provide an incentive for increased production.

Mr. Reynold Rapp, Member of Parliament for Humboldt-Melfort-Tisdale, presented a brief in support of duties on rape seed and other oil-seeds, vegetable oils and oilcakes. In support of his proposals, he stated:

(1) Official Report, January 15, 1962, page 67

(2) Ibid., pages 65-6

- "a) Wheat acreage reduction is essential to reducing surplus stocks now and in the future, and rapeseed is a cash crop that can be grown as an alternative to wheat.
- b) Production of soybeans is rapidly expanding in the corn belt of the United States, depressing the world market, and it is imperative that our producers be put in a competitive position by imposing reciprocal tariffs.
- c) There is room for a gradual expansion of our Canadian livestock industry."(1)

The spokesman for Canada Linseed Oil Mills Limited suggested that, since Canada was the largest exporter of flaxseed in the world, a duty did not seem to be required. Flaxseed is at present dutiable at a British preferential rate of $7\frac{1}{2}$ cents per bushel and at a most-favoured-nation rate of 10 cents per bushel. The most-favoured-nation rate is equivalent to an ad valorem rate of about three per cent at current prices.

The Canadian Federation of Agriculture made no representations.

Other Considerations

The proposals of the growers for duties on oil-seeds, which would involve the imposition of duties on oilcakes and a general increase in the duties on edible vegetable oils as well, were strongly opposed at the public hearing. The Consumers Association of Canada, processors of oil-seeds, feed manufacturers and a number of farm organizations all pointed out how their interests would be adversely affected if the proposals of the growers were to be implemented. The positions taken by many of these groups are summarized in a subsequent part of this Section entitled The Consumers.

Soya bean prices in Canada, as the spokesman for the growers readily conceded, are more or less set by the price at Chicago. A spokesman for the crushers indicated that premiums are sometimes paid for Canadian soya beans in order to meet contracts for exports of soya bean products to the United Kingdom; such exports, in order to qualify for preferential tariff treatment, must have a specified Commonwealth content.

The United States is the world's largest producer of soya beans and it is a major exporter. Prices in the United States therefore are influenced by trends in world supply and demand. Prices were particularly low in 1959 and 1960, reflecting abundant world supplies. The United States support price fell from \$2.15 per bushel in 1956 to \$1.85 in 1959 and 1960, and rose to \$2.30 in 1961; it was reduced to \$2.25 in 1962. Canadian soya bean growers are eligible for deficiency payments under Canada's Agricultural Stabilization Act which came into effect in 1958. Payments, when made are related to average market

(1) Official Report, January 15, 1962, pages 137-8

prices over the previous ten years. In the crop years 1958-59 and 1959-60, years of particularly low prices, a total of some two million dollars in deficiency payments was made to Canadian soya bean growers; these payments were in addition to the market prices received by the farmers for their soya bean crops. No deficiency payments have been made since that time because of increases in the market price.

In the fall of 1961 the position of the soya bean growers was also improved by a reduction in freight rates. In October of that year the freight rate on soya beans shipped from Chatham to Toronto was reduced from 51 cents per hundred pounds to $23\frac{1}{2}$ cents.

While the area which has been found suitable for the cultivation of soya beans in Canada is relatively small, yields in that area are high. The spokesman for the Ontario Soya-Bean Growers' Marketing Board indicated that yields were comparable with those in the best producing areas in the United States. Moreover, a wide range of other crops can be and are grown successfully in the same area. It is one of the few good areas in Canada for the growth of corn for grain, in which Canada is usually deficient. Oats and barley are also grown in considerable quantity. Farmers in the areas produce sugar beets, tomatoes, peas and burley tobacco as well. Despite the alternatives available to farmers in the area, the spokesman for the growers estimated that between 25 and 35 per cent of the total acreage was devoted to soya beans. It was pointed out at the public hearing that there was a limit to the percentage of this land which could be devoted to soya beans while still maintaining good crop rotational practices.

For Canada to become self-sufficient in soya beans, production would have to be more than doubled. Serious doubts as to whether this was possible with present agricultural technology were expressed by witnesses who were well qualified or who quoted qualified authorities. In any case, it became clear that increases in soya bean production could only be achieved by displacement of crops such as corn and feed grains which at present are commercially attractive to the farmer.

The rape seed crop is, as noted in the Section on The Market, largely exported. While consumption of rape seed products in Canada has been increasing, a number of commercial and technical factors have inhibited the rate of increase. Moreover, production has reached such substantial proportions that growers are likely to remain primarily dependent upon exports for many years. While imports of rape seed are not recorded separately, the Board heard no evidence that they were anything but negligible. In these circumstances, it is doubtful that duties on rape seed would have much effect of any kind on production, trade or prices.

Sunflower seed was brought under the provisions of the Agricultural Stabilization Act in 1959 and a support price of four cents per pound established. In the crop year 1959-60, deficiency payments totalling \$44,377 were paid; none has been found necessary since that time. Approximately half the crop was exported in the crop year 1961-62. While imports of sunflower seed are not recorded separately they are believed to be negligible.

The Crushers of Edible Oil-seeds

A joint brief was presented by the following three soya bean crushers:

Canadian Vegetable Oil Processing Limited, Hamilton
Toronto Elevators Division, Maple Leaf Mills Limited,
Toronto
Victory Soya Mills Limited, Toronto

These three firms account for more than 80 per cent of the edible oil-seeds, other than corn, crushed in Canada. Reference has already been made to Co-Op Vegetable Oils Limited in Manitoba whose primary interest is that of its member oil-seed growers. While there are two other edible oil-seed crushers on the Prairies, they made no representations.

The proposals of the crushers are reproduced in Appendix IX. They proposed that the duties on most goods of interest to them should remain unchanged. Thus, under their proposals most of the trade in soya bean oil, whether crude or processed, would continue to be governed by tariff items 276g and 277, both of which provide for a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. The trade in most other crude edible oils would continue to have duty-free entry under the British Preferential Tariff and a duty of 10 p.c. under the Most-Favoured-Nation Tariff. In addition, the crushers sought the deletion of tariff items 276f(1), 276f(3) and 276f(4) under which soya bean oil for use in leather, textiles and soap are entered duty-free; soya bean oil for these uses would, under their proposals, become dutiable along with other soya bean oil at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. They also proposed changes in the wording and arrangement of a number of tariff items to clarify descriptions. The submission contained proposals affecting alkali refined soya bean oil; these are dealt with in a subsequent section.

The spokesman for the crushers emphasized that the proposals were based on the assumption that soya beans would be left duty-free and that Canadian soya bean products would continue to be accorded preferential tariff treatment by the United Kingdom. They indicated they would require higher rates if these conditions ceased to exist. In making their proposals the crushers said that while they had the protection of a duty of 20 p.c. on soya bean oil imported from the United States for edible purposes, there was continuous competition from other vegetable oils and fish oils. The crushers did not propose increases in duties on the other vegetable oils which compete with soya bean oil and they pointed out that fish oils are not within the scope of the present Reference.

With regard to their competitive position, the crushers stated:

"An important factor in the price situation is the close proximity of the U.S. soybean and cottonseed crushing industry with large plants able to operate all year at or near full capacity with consequent very low crushing costs. Furthermore, part of the Canadian market is unavailable to us since existing

freight rates from Ontario preclude the possibility of our supplying oil and meal at competitive prices to users west of Ontario. For example, while a casual view of the statistics might indicate that domestic consumption of meal is roughly equivalent to domestic production (from both U.S. and Canadian beans), an important feature from the crushers' point of view is that export markets have to be sought for substantial quantities of meal because the Western Canadian customers can buy cheaper meal in the United States. A similar situation is present in the soybean oil market."(1)

The selling value of the oil and meal in a bushel of soya beans is only 40 to 50 cents higher than the cost of a bushel of soya beans to the crushers. In these circumstances the imposition of a duty of half a cent per pound (30 cents per bushel), as proposed by the growers, could obviously not be absorbed by the crushers and they would require a substantial increase in the level of their protection against all vegetable oils. They might then be exposed to more intensive competition from animal and marine oils.

With respect to the preferential tariff treatment accorded Canadian soya bean products in the United Kingdom, the crushers indicated that the loss of this preference would seriously reduce their volume, thus increasing unit production costs; in such circumstances they considered they would require increased tariff protection.

The Competitive Position of the Eastern Crushers

The volume of domestic sales of soya bean oil is governed largely by competition from other oils rather than from imported soya bean oil. A spokesman for the crushers stated:

"While the industry has a protection of 20% on soybean oil imported from the United States for edible purposes, there is continuous competition from such interchangeable or substitutable oils as palm, coconut and peanut, most of which originate in the Commonwealth; from cottonseed oil, largely from the United States and bearing only a 10% rate of duty; and, particularly this year, from off-shore fish oils which even after duty, are so low in price as to sharply affect all edible oil prices. ... This competition plays a large part at all times in determining the prices obtainable for Canadian soybean oil."(2)

Nevertheless, under existing rates of duty there has been a tremendous increase in the use of soya bean oil in Canada over the past 20 years, both in absolute terms and in terms of the proportion of total oils and fats used. Moreover, as has been brought out in the Section on The Market, the Canadian soya bean crushers supply most of the Canadian market for soya bean oil.

With the most-favoured-nation duty of 20 p.c., the Canadian price of crude soya bean oil has been lower than the landed cost of soya bean oil from the United States.

(1) Official Report, January 15, 1962, pages 155-6

(2) Ibid., page 155

Average Monthly Prices of Canadian and U.S.
Soya Bean Oil in Toronto
(in tank car lots)

<u>Year</u>	<u>Canadian Crude Soya Bean Oil at Toronto</u> cents per lb.	<u>U.S. Crude Soya Bean Oil Laid Down at Toronto</u> cents per lb.	<u>Difference</u> cents per lb.
1956	15.21	17.14	1.93
1957	14.73	15.66	0.93
1958	13.93	13.83	-0.10
1959	12.08	11.93	-0.15
1960	11.28	11.76	0.48
1961	14.81	15.51	0.70
1962	12.06	12.98	0.92

Source: Based on statistics published by the Dominion Bureau of Statistics and the United States Department of Agriculture, and on information supplied by the Canadian crushers.

In recent years, except in 1958 and 1959, the Canadian crushers have consistently undersold U.S. soya bean oil in Toronto by substantial margins. The relatively higher prices of Canadian soya bean oil during 1958 and 1959 appear to have been a reflection of strong demand rather than any inability of the Canadian crushers to compete; in each of those two years, production established a new record.

Of this landed cost from the United States, typically about two cents per pound represents the duty which is paid. Thus, the Canadian price is generally higher than that for the imported product by an amount well below the full duty paid on those imports which are dutiable at 20 p.c. The constituents of landed cost are contained in Appendix III.

In addition to the duty, the Canadian producers enjoy a freight advantage for vegetable oils and oilcake over most of the eastern and central parts of Canada where most of the domestic sales of the eastern crushers are made. Comparative freight rates are illustrated in the following table:

<u>Destination</u>	<u>From Decatur</u>		<u>From Toronto</u>	
	<u>Oil</u> cents/lb.	<u>Oilcake</u> cents/lb.	<u>Oil</u> cents/lb.	<u>Oilcake</u> cents/lb.
Montreal	1.37	0.96	0.46	0.46
Toronto	1.17	0.72	0.06(a)	0.06(a)
Winnipeg	1.41	1.09	1.92	1.66
Vancouver	1.43		1.86	

(a) Approximate cost of local delivery

Sales of crude oil west of Ontario by the eastern crushers are relatively small, and the crushers do not ship oilcake much more than one hundred miles west of Toronto. There is, moreover, some crushing capacity near the Winnipeg market.

The Board was able to make some approximate comparisons of processing costs for soya bean crushing in Canada and the United States. The detailed processing costs of the Canadian crushers were supplied to the Board in confidence. A study of costs for soya bean crushers in the United States for the crop year 1952-53 indicated that, for mills of sizes roughly comparable to those in Canada, the direct processing costs, other than the cost at plant of the soya beans, were in the order of 22 to 27 cents per bushel. A summary of the study is given in Appendix III. The margin which the Canadian crusher has between the laid-down cost of the beans at his plant and the revenue received from the sale of soya bean oil and cake appears to be typically about 50 cents per bushel.⁽¹⁾

The additional cost of shipping oil and oilcake to the Toronto-Montreal area over the cost of shipping the oil-seeds would seem to result in a landed cost of these products in Toronto which would enable the Canadian crusher to retain the margin of 50 cents per bushel, referred to above, with even less protection than that afforded by the 20 p.c. M.F.N. rate on soya bean oil.

The importance of the United Kingdom market for Canadian soya bean crushers is shown in the following table.

Year	Soya Bean Oil		Soya Bean Oilcake		
	Total Factory Shipments (mil. lbs.)	Exports to U.K. (mil. lbs.)	Total Factory Shipments (tons)	Exports to U.K. (tons)	Imports via Ports East of Manitoba (tons)
1959	170	27	383	196	198
1960	185	20	400	195	150
1961	163	30	361	132	156
1962	181	45	408	213	..

Source: Dominion Bureau of Statistics

The United Kingdom market for soya bean oil, in which the preferential margin amounts to 15 percentage points, has clearly been a very important factor in the operations of the eastern crushers. While the net return to the crushers on soya bean oil exported to the United Kingdom is usually not as high as on domestic sales, the contribution of the British market to total volume of sales is nevertheless substantial.

⁽¹⁾ The data on which this estimate is based are given in Appendix III.

In the case of soya bean oilcake, exports to the United Kingdom have been more or less balanced by imports into eastern Canada; the preferential margin of 15 percentage points has apparently made the British market relatively attractive.

Altogether, the evidence which the Board has obtained suggests that under prevailing conditions the position of the Canadian soya bean crusher has been quite satisfactory. While the Board cannot reveal the figures, it can be said that the returns on investment for the eastern crushers have been well above the average for all manufacturing.

The Refiners of Edible Oils

The Eastern Refiners

The following companies presented a joint brief:

Canada Packers Limited
Colgate-Palmolive Limited
Lever Brothers Limited
Procter & Gamble Company of Canada, Limited
Swift Canadian Company Limited

More than four fifths of the combined output of refined and further processed edible oils by these companies comes from plants situated in Ontario and Quebec, and in that sense the brief represents the views of the eastern refiners; Canada Packers Limited, however, does operate oil refineries in the West as well as at Toronto and Montreal. Colgate-Palmolive does not refine oils for edible purposes and is not a merchant supplier of refined oils, being concerned only with the use of fats and oils for soaps, detergents and toilet preparations.

Proposals respecting certain refined edible oils were also received from Co-Op Vegetable Oils Limited and from Canada Linseed Oil Mills Limited as well as the Canada Starch Company Limited, processor of corn oil. The proposals of Co-Op Vegetable Oils Limited were dealt with earlier in this Report. Those of The Canada Linseed Oil Mills Limited and The Canada Starch Company Limited are dealt with later on.

The five eastern refiners, in their brief, expressed satisfaction with most of the tariff items of interest to them in the Reference, but they sought changes in a few. Their spokesman stated:

"As vegetable oil refiners, and as sellers and users of vegetable oils, our interest lies in the obtaining of necessary supplies of crude oils, and in obtaining that margin of tariff protection required to enable profitable operation of refining facilities in Canada. Our tariff proposals, as filed with the Board on November 4, 1961, are directed towards the establishment of the differentials which we believe necessary to this end.

"In most of the tariff items within the scope of Reference 131, with which we are concerned, this pattern already exists, and for most of these items we have suggested no change in the existing rates, looked at without regard to end use. We have proposed the elimination of end use items where practical. In the case of consumption by export industries, the export drawback will, of course, continue to apply."(1)

In support of their proposals the refiners presented data respecting those elements of cost in which they considered they were at a competitive disadvantage. The competitive position of the refineries is explored in the subsection which follows.

With a few exceptions associated with special circumstances, they sought differentials between the rates on crude and refined vegetable oils of 15 percentage points under the British Preferential Tariff and 10 p.c. under the Most-Favoured-Nation Tariff. Increased duties on refined rapeseed, soya bean and cottonseed oils were envisaged in their proposals. In addition, the refiners sought the elimination of end use items whereby certain specified users may import oils either free of duty or at lower rates than are available to other users. The details of their proposals are contained in Appendix X. The proposals were supported by the following three companies which described themselves as the Canadian Fatty Acid Producers:

Canada Packers Limited
Emery Industries (Canada) Limited
Harchem Limited

The Competitive Position of the Refiners - More than half the output of edible oils processed by the eastern refiners is retained for their own use in the manufacture of margarine, shortening, salad and cooking oils, and other products. The remainder is sold as refined oils and blends to other manufacturers of edible and industrial products. As was noted in the Section on The Market, imports of margarine, shortening, and salad and cooking oils packed for retail sale have not been large, and the refiners indicated they were not meeting significant import competition in those products. They did, however, complain about competition from the United States in the sale of processed oils to industrial users. Their spokesman stated:

"In the case of processed oils for industrial or merchant sale the situation is much different. Here raw materials are a major cost factor, and it is in this field, which accounts for approximately 50% of our volume, that United States competition is most severe. The effects of this competition have been twofold. Imported refined vegetable oils from the United States comprise a substantial proportion of Canadian consumption of such oils, having increased from 32.1 million pounds in 1956 to 59.6 million pounds in 1960. This now

(1) Official Report, January 17, 1962, pages 323-4

amounts to 15.1% of total Canadian consumption of all vegetable oils. Regarded in terms of merchant sales, these imports represented 33% of our market for refined vegetable oils in 1960. This loss of volume has both increased our costs and depressed Canadian price levels, bringing prices close to the break-even point for the Canadian refining industry."(1)

Figures which have become available since the time of the public hearing and which are reported in the Section on The Market indicate that, while imports of refined and further processed edible oils have continued in significant volume, they have declined appreciably from the peak which was reached in 1960. In 1962 they amounted to about 35 million pounds, of which about 25 million pounds could be considered as competitive with the production of the edible oil refiners.

The cost relationships in Canada and the United States which determine the ability of the Canadian processors to compete in the Canadian market are complex. The prices of different oils and their price relationships to one another are constantly changing. Margarines, shortenings or other finished products containing different blends of oils may be sold competitively at identical prices; products containing other blends may have greater or lesser appeal and may be priced accordingly. Some blends may contain costlier oils which may or may not be less costly to refine. Differences in the Canadian and United States tariff structures and in the refining equipment in use may encourage the use of one particular oil in Canada and of another in the United States.

In describing their cost disabilities, the refiners chose soya bean oil as an illustration. Soya bean oil supplies over half the edible oil requirements in the United States and about 40 per cent of Canadian requirements. Moreover, soya bean oil is believed to account for a large part of the imports of refined oils from the United States. The most-favoured-nation rate on both crude and refined soya bean oil is 20 p.c., except for certain users enjoying special rates.

Well over half of the soya bean oil used in Canada is for margarine and shortening; for these uses it must be refined and then hydrogenated. The following table prepared by the Board illustrates how the landed cost at Toronto of Canadian and of United States hydrogenated soya bean oil might compare at one point in time.

(1) Official Report, January 17, 1962, page 325

Oil Refined in TorontoOil Refined in Chicago

	cents per lb.		cents per lb.
Crude oil at Decatur	10.50	Crude oil at Decatur	10.50
5% exchange	0.52	Freight to Chicago	
20% duty	2.20	refiner	0.25
Freight Decatur-Toronto	<u>1.17</u>	Spread between prices	
Cost of U.S. crude at		of crude and refined	<u>2.35</u>
Toronto	14.39	Price of refined at	
		Chicago	13.10
Total processing costs		5% exchange	<u>0.66</u>
(net of disposal of foots)	<u>3.15</u>		13.76
Cost of refined oil at		20% duty	<u>2.75</u>
Toronto	17.54		16.51
		Remainder of in transit	
		rate to Toronto	<u>0.98</u>
		Landed cost at Toronto	17.49

According to information published regularly in the United States, the prevailing spread in prices between crude and hydrogenated soya bean oil is between \$2.35 and \$2.40 per one hundred pounds; this amount would include processing costs and profits in the United States. The refiners said that costs in Canada with no allowance for profits averaged about \$3.15.

These figures suggest that the duty protection on the difference in the prices of crude and refined oil is not sufficient to offset the higher cost of processing in Canada as compared with the United States. However, the crushers have not been taking full advantage of the duty on crude oil; their prices have usually been somewhat less than the landed cost of imported crude.

The Board obtained in confidence information on the costs of some Canadian refineries. While some of the costs, such as overhead, must be allocated somewhat arbitrarily to the production of a particular product, the information which was submitted confirmed that costs in Canada are higher than in the United States. In the larger and more efficient Canadian plants costs would appear to be below the figure of \$3.15 cited by the industry, even though they might be higher in the smaller and less advantageously located plants.

The refiners indicated that their principal cost disadvantage stemmed from the ability of United States refiners to devote an entire plant to the processing of one oil; they stated that the overall size of the market in Canada had not been sufficient to support such specialized plants. In addition the refiners referred to higher costs resulting from the loss in weight normally associated with the processing of crude oils; they cited the higher costs of crude oils in Canada and a smaller return from disposal of waste products.

While emphasis has been placed on the cost disadvantages of Canadian refiners in producing soya bean oils in which the United States refiners specialize, the cost disadvantage in the processing of other competing oils may well be less pronounced. The United States was described at the public hearing as a country in which the refiners have concentrated on the processing of two oils - soya bean oil and cottonseed oil - to a greater degree than Canadian refiners. While this has permitted economies in large scale processing in the United States, the Canadian refiners with less specialized equipment have been in a better position to switch from one oil to another as costs dictated. A spokesman for the refiners stated:

"There are periods when the United States oil - cottonseed in particular - has gone to higher prices in terms of the characteristics that can be obtained than the prices of oils that are available in other portions of the world and which can be made available to the Canadian market. These Canadian companies are facing competition on end products from the United States and other countries, and they have had to keep their costs as low as possible.

"Now when you have had periods when by using not cottonseed oil, but a variety of other oils, you can get your costs down of the raw material substantially below what the price of U.S. cottonseed oil would have been, and on blends you may find - in fact, the Canadian industry by and large has found - that it is cheaper on blends to use a production system of batch processing which is adaptable on switching from one oil to another as one becomes cheaper than another, instead of using a system which is pretty well tied to a single oil or which, if you discontinue the use of it and clean it out and substitute other oils in it, it becomes a less efficient employment of capital in what really ends up as a batch process after all."(1)

The differences in processing techniques between Canada and the United States were said to be related in part to differences in the tariff structures of the two countries. A spokesman for the refiners said:

"...the United States duty structure has been quite different to our own, and ... they have had duties on various oils which have inhibited the United States oil refiners from making the same switches that we have."(2)

With the cost disabilities found in the example cited above, and assuming that the soya bean crushers typically take 50 cents less than the full duty protection on crude, a soya bean oil fully processed in Toronto would cost \$17.04 per hundred pounds compared with a price of \$17.49 for United States oil landed in Toronto. On this same basis, the situation in a number of Canadian cities where large industrial consumers of edible oils are located would be as follows:

(1) Official Report, January 17, 1962, pages 378-9

(2) Ibid., page 380

<u>City</u>	<u>Oil Refined at Toronto</u>		<u>Oil Refined at Chicago</u>	
	<u>Freight</u>	<u>Landed Cost</u>	<u>Freight</u>	<u>Landed Cost</u>
	dollars per hundred			
Toronto	-	17.04	0.98	17.49
Montreal	0.46	17.50	1.19	17.70
Winnipeg	1.40	18.44	1.33	17.84
Vancouver	1.86	18.90	1.24	17.75

The figures suggest that a Toronto refiner would be able to compete in Montreal as well as in Toronto against imports from the United States. With regard to Winnipeg and Vancouver, while oils processed in Toronto would not appear to be competitive in those markets, some shipments of processed oils are made from Toronto to those cities. There are, of course, refineries located on the Prairies. The eastern refineries do ship large quantities of fully manufactured margarine and shortening throughout Canada. Industrial users in Vancouver are believed to obtain a substantial part of their supplies of refined and further processed oils from the United States.

Soapstocks and Acid Oils - The refining of vegetable oils consists in part of the addition of an alkali and water, resulting in the precipitation of a residue known as soapstock. The soapstock consists of a mixture of soap, neutral oils or fats, and water. The soapstocks of some vegetable oils are sold for use in the manufacture of soaps. More frequently the soapstock is treated with a mineral acid to produce what are known as acid oils. Acid oils are used in the manufacture of soaps, animal feeds and fatty acids.

Soapstocks and acid oils are neither named nor defined in the Customs Tariff at present, although they are frequently classified along with the vegetable oils from which they have been derived. The refiners of edible oils proposed the following criteria for classifying soapstocks and acid oils:

"i) Soapstock: Soapstocks are by-products of oil refining produced by the neutralization of free fatty acid by an alkali and consisting of a mixture of soap and neutral oils or fats. Products containing less than 50% moisture by weight should be classified as soaps.

ii) Acid Oils: Acid oils are prepared by the treatment of soapstock with mineral acid. Any mixture of glycerol esters and fatty acids which contains by weight neither less than 30% or more than 90% of free fatty acid should be classified as an acid oil."(1)

The refiners expressed the view that soapstocks and acid oils should be dutiable at the same rates as the crude oils from which they have been derived, because of their origin and the similarity of some of their uses. No opposition was expressed to these proposals.

(1) Official Report, January 17, 1962, pages 328-9

Corn Oil

Crude and refined corn oil are produced in Canada by The Canada Starch Company Limited and by St. Lawrence Starch Company Limited. Of these two, only The Canada Starch Company Limited made proposals.

The Canada Starch Company Limited proposed that tariff item 276g be replaced by the following items.

	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>General Tariff</u>
Corn oil, crude, when imported for use in the manufacture of refined corn oil	Free	10 p.c.	10 p.c.
Corn oil, refined	15 p.c.	20 p.c.	25 p.c.

The effect of the proposal is to establish a differential in the rates of duty on imported crude and refined corn oil in order to give an added incentive to refine corn oil in Canada. Under the existing Tariff no such differential exists. Under the proposals, crude corn oil when imported for a use other than that specified in the proposal would probably be entered under tariff item 711 which carries a British preferential rate of 15 p.c., a most-favoured-nation rate of 20 p.c. and a general rate of 25 p.c. The Board did not hear of importations of crude corn oil for purposes other than refining. In fact, a spokesman for the company said that he knew of no use for crude corn oil other than for processing into refined corn oil.

The eastern refiners of vegetable oils also submitted a proposal for corn oil with rates on crude, refined and further processed of 15 p.c. under the British Preferential Tariff, 20 p.c. under the Most-Favoured-Nation Tariff and 25 p.c. under the General Tariff. This proposal would have the effect of maintaining the existing rates of duty and no comment on it was made by the refiners who made the proposal.

The volume of crude corn oil production in Canada is governed by the demand for corn starch and other associated products. The demand for corn oil in Canada has greatly exceeded production of crude corn oil in recent years, and substantial quantities of crude from the United Kingdom and elsewhere have been imported.

Crude corn oil is only one of a number of products resulting from what is known as the wet milling of Indian corn; the other products of wet milling include corn starch, corn syrup and corn oil cake for animal feed. The oil content of corn is only about three per cent by weight, and sales of corn oil constitute less than one fifth of the total value of sales from the wet milling process.

Partly as a consequence of its reputed special health promoting qualities and partly because of an increasing popularity of liquid vegetable oil products, corn oil has been in heavy demand as a salad and cooking oil; corn oil margarine has also appeared on the market. The prices of crude and refined corn oil are significantly higher than those of competing oils, for example:

U.S. Prices of Corn Oil and Soya Bean Oil
(dollars per hundred pounds, in tank cars)

<u>Corn Oil</u>		<u>Soya Bean Oil</u>	
<u>Crude</u>	<u>Refined</u>	<u>Crude</u>	<u>Refined</u>
12.50	14.25	9.15	11.35

Source: Oil, Paint and Drug Reporter, May 27, 1963

The Board obtained Canadian and U.S. prices, in bulk and in retail containers, of refined corn oil. While the prices were somewhat higher in Canada, they did not reflect the full most-favoured-nation duty of 20 p.c. Virtually all imports are believed to be in crude form.

The Processors of Inedible Oil-seeds and Oils

The Processors of Flaxseed - Flaxseed and flaxseed products are at present dutiable under the following tariff items:

<u>Tariff Item</u>	<u>Goods Subject to Duty and Free Goods</u>	<u>B.P.</u>	<u>M.F.N.</u>
70	Flax seed per bushel	7½ cts.	10 cts.
68	Linseed oil cake and linseed oil cake meal, cotton seed cake and cotton seed cake meal, and palm nut cake and palm nut cake meal	Free	Free
258	Linseed or flaxseed oil, raw or boiled per one hundred pounds	\$1.25	\$1.55
277	Oils, hydrogenated, blown, dehydrated or sulphonated, not including blown or hydrogenated fish, seal or whale oils	15 p.c.	20 p.c.

Other types of refined linseed oil are dutiable under tariff item 711 at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c.

The most-favoured-nation duty on flaxseed is equivalent to about three per cent ad valorem, and on raw and boiled linseed oil to between nine and twelve per cent, at the price levels which have prevailed in the United States in recent years.

The Canada Linseed Oil Mills Limited proposed that the crude oils and oilcakes of flaxseed, soya beans, perilla seed, sunflower seed and safflower seed bear duties ten percentage points higher than whatever rate flaxseed was to bear, and that the processed oils be dutiable at rates five percentage points higher than the crude oils. The company proposed that flaxseed be duty-free.

On the basis of duty-free flaxseed, the principal effects of the proposals would be to impose duties of 10 p.c. on oilcakes and to reduce the rate on refined linseed oil from 20 p.c. to 15 p.c. Whereas boiled linseed oil is now dutiable at the same rate as crude, the company proposed that it be made dutiable along with other processed linseed oils.

The Sherwin-Williams Company of Canada Limited, which is a processor of flaxseed, proposed that duties be imposed on all oilcakes. Maple Leaf Mills Limited, as a party to the submission of the crushers, proposed no change in linseed oil duties. Other processors of flaxseed made no representations.

The proposals to apply duties to imports of oilcakes could, of course, be expected to have a favourable effect on the revenues of the flaxseed processors. However, as the spokesman for the Canadian Feed Manufacturers National Association pointed out, farmers are now using many times as much soya bean oilcake as linseed oilcake, so that the imposition of duties on soya bean oilcake would be a heavy price to pay for whatever benefits might accrue to the linseed oil processors.

The Competitive Position of the Processors - The production of flaxseed products in Canada has declined in recent years on account of a decrease in domestic demand. Although exports of linseed oil and oilcake have often amounted to a fifth or more of output, the processing industry is oriented primarily towards the domestic market. Exports, even to the United Kingdom where the Canadian processors enjoy preferential tariff treatment, usually reflect a lower net return than domestic sales. Some countries, including Argentina and India, have from time to time imposed restrictions on exports of flaxseed in order to stimulate exports of flaxseed products. When the restrictions are in effect the importing countries turn to Canada and the United States for a larger proportion of their flaxseed requirements.

The decline in domestic demand for linseed oil appears to have been due to shifts in the price relationships among competing oils and to the introduction of new products. The paint industry has been using larger quantities of soya bean oil at the expense of linseed oil; vinyl based floor tiles and plastic sheetings have cut into the market for linoleum and oilcloth. At the same time, new uses for linseed oil are under development, and there is no reason for assuming that the declines in consumption will continue indefinitely.

Imports of flaxseed products, mainly from the United States, have been very small in recent years. Although Argentina is now the largest exporter of linseed oil, there have been no imports into Canada from that country.

As the following table shows, flaxseed constitutes by far the largest element of cost to the processors.

Approximate Spread Between Cost of Flaxseed and
Revenues from Sale of Crude Oil and Oilcake in Canada

	<u>1951</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
Average cost of flaxseed at mills (dollars per bu.)	3.96	3.08	3.17	3.32
Revenue from sale of 19.3 lbs. of crude linseed oil (dollars)	3.47	2.37	2.57	2.57
Revenue from sale of 34 pounds of linseed meal (dollars)	1.26	1.03	1.16	1.29
Total Revenue	4.73	3.40	3.73	3.83
Spread between cost of flaxseed and revenue	0.77	0.32	0.55	0.53

Source: From statistics published by the Dominion Bureau of Statistics

The treatment of crude linseed oil adds additional value. The Board obtained the prices of crude linseed oil and of ten grades of processed linseed oil. At the time, crude linseed oil was quoted at \$1.35 per gallon, and the processed grades were quoted at premiums varying from 4 cents per gallon for boiled linseed oil to 50 cents per gallon for heat polymerized low acid oil.

Canada is the world's largest exporter of flaxseed, and Canadian processors do not suffer any competitive handicap in the domestic market in their purchases of this product. In fact, the farm price of flaxseed has generally been somewhat lower in Canada than in the United States. While the farm prices are by no means identical with the cost at the crushing plants, the spokesman for The Canada Linseed Oil Mills Limited indicated that the cost of flaxseed to the processors has generally been lower in Canada. He stated:

"In recent years the price level of Canadian flax seed has generally been below the United States price level. However, this has not always been the case. There have been periods when, due to particular market conditions, Canadian prices have for short periods gone substantially above United States price levels...

...this has not seriously affected our cost structure as a purchaser of flaxseed... because of our ability under the existing duty rate... to import from the United States whenever Canadian prices got seriously out of line."(1)

(1) Official Report, January 16, 1962, pages 225 and 226

With regard to processing costs, the spokesman for The Canada Linseed Oil Mills said that the Canadian processors had certain disadvantages. He said that processing costs were higher in Canada because the mills were smaller than those in the United States. He also said that arrangements for toll crushing made by the Government of the United States in some years involved an element of indirect subsidy for the processors of that country.

In Canada, most flaxseed processing is done by the expeller method whereas most United States processors have converted to the newer solvent system. The expeller system leaves more oil in the oilcake; the yield of oil is lower but the price of expeller oilcake is somewhat higher than that of solvent oilcake. A spokesman for The Canada Linseed Oil Mills expressed a preference for the expeller process. He stated:

"If we were building a new plant we would hesitate to put in a solvent plant because of the non-acceptability of the oilcake meal; and, of course, we are dependent on both products moving. The meal movement concerns us sufficiently that we would think twice before putting in the solvent method."(1)

Neither the industry nor the Board has been able to make a quantitative comparison of processing costs in the two countries. However, the price of linseed oil is often lower in Canada than in the United States, and the price of linseed oilcake in Canada is well below the landed cost of U.S. linseed oilcake. The principal market for oil is in the Toronto and Montreal areas.

Crude Linseed Oil Prices
(cents per pound)

<u>Year</u>	<u>Tank Cars,</u> <u>Minneapolis</u> (U.S. cents)	<u>Tanks,</u> <u>New York</u> (U.S. cents)	<u>Tank Cars,</u> <u>Montreal</u> (Can. cents)
1951	18.9	19.9	22.75
1952	15.9	17.0	19.35
1953	15.0	16.2	14.38
1954	14.6	15.8	12.30
1955	12.9	14.1	14.80
1956	14.1	15.4	18.73
1957	13.6	15.0	13.01
1958	13.8	15.3	13.98
1959	13.1	14.5	14.62
1960	13.1	14.2	13.33
1961	14.2	15.2	15.05
1962	14.2	15.3	15.91

Sources: Agricultural Statistics, United States Department of Agriculture
Prices and Price Indexes, Dominion Bureau of Statistics

(1) Official Report, January 16, 1962, page 266

As the foregoing table indicates, the Canadian price of linseed oil has not been determined by the U.S. price; other factors such as the general demand for oil and oilcake and the prices of soya bean products have probably been more influential.

Prices of Canadian and U.S. linseed oilcake meal, landed at Toronto, are shown in the following table (dollars per ton).

<u>Year</u>	<u>Canadian Expeller Meal</u>	<u>U.S. Solvent Meal</u>	<u>U.S. Expeller Meal</u>
1959	75.42	85.04	89.67
1960	75.17	73.42	80.08
1961	72.33	76.48	81.15
1962	81.94	95.50	99.95

Source: Average of first week of each month, supplied to the Department of Agriculture by Parrish and Heinbecker.

Meal prices at the mill have generally been higher in Canada than in the U.S. but by a smaller amount than the cost of freight from the United States which amounts to \$20 per ton or more. Here again, other factors such as the price of soya bean meal undoubtedly influence Canadian prices. Canadian crushers are often able to export linseed meal to the United States.

Alkali Refined Soya Bean Oil

Alkali refined soya bean oil is soya bean oil refined in a particular way to meet the requirements of the manufacturers of alkyd resins; it is an inedible form of soya bean oil. Alkyd resins made from soya bean oil are used principally in the manufacture of paints and varnishes. Semi-drying oils such as soya bean oil, through their use in the manufacture of alkyd resins, can be used in the manufacture of some paints and varnishes in place of drying oils such as linseed.

Technical changes, together with the price relationships which have prevailed in recent years among soya bean oil, linseed oil, castor oil and other oils used in paints, have favoured a rapid increase in the use of soya bean oil. The direct consumption of soya bean oil - mainly alkali refined - by the paint industry in Canada is recorded as having risen from three million pounds in 1951 to nine million pounds in 1960, while consumption of linseed oil declined. There is, in addition, a substantial quantity of soya bean oil used by manufacturers who supply alkyd resins to the paint industry. A spokesman for the Canadian Paint Varnish and Lacquer Association Incorporated estimated the total use of soya bean oil in paints at around 14 million pounds annually of which about one half was produced in Canada.

Alkali refined soya bean oil is produced by Maple Leaf Mills, Limited, Toronto. The company, as party to the joint brief of the eastern crushers, had originally sought an end to the provisions for duty-free entry of soya bean oil for use in paints and varnishes, but the proposal was withdrawn towards the close of the public hearing pending the Board's Report on Chemicals - Reference 120.

A spokesman for the company stated that the only reason they had been able to sell to the paint industry without duty protection was that they also sold soya bean oil for edible purposes. The market situation, however, had given them no incentive to switch a larger part of their processing to alkali refined oil. This is so even though a large part of the market for alkali refined soya bean oil is in Toronto, where the Canadian manufacturer has a freight advantage. The company also makes some sales in Montreal and Winnipeg, but does not attempt to compete for the relatively small market in British Columbia. Moreover, the spokesman for the company indicated that, even with the protection he had originally proposed, they would not be competitive in British Columbia with oil imported from the U.S.

Alkyd resins are understood to be dutiable under tariff item 901; both the British preferential and most-favoured-nation rates of the parts of the item said to be relevant vary from 5 p.c. to $12\frac{1}{2}$ p.c., depending upon the condition in which they are imported. Tariff item 901 is not within the scope of the present Reference, but it is within the scope of Reference 120 relating to Chemicals.

The imposition of duties on soya bean oil for use in paints and varnishes was opposed by the Canadian Paint Varnish and Lacquer Association. Some member companies of the Association use soya bean oil directly in the manufacture of alkyd resins and for other purposes, and most or all of them use alkyd resins and other products containing soya bean oil. The following other manufacturers of alkyd resins also expressed opposition to the imposition of duties on soya bean oil for use in paints:

Canadian General Electric Company Limited
Polyresins Limited
Reichhold Chemicals (Canada) Limited

A spokesman for the paint industry contended that such duties would be particularly harmful to those paint manufacturers and others who had invested in facilities for the production of alkyd resins. He said that the duty would be of very limited good to the manufacturer of alkali refined soya bean oil at least as long as the duties on competing products remained unchanged. Imports of fully manufactured alkyd resins would increase. Moreover, he contended that tall oil, which is duty-free, would be used in larger quantities by the Canadian manufacturers of alkyd resins. He stated:

"I do not see, really, where either the existing regular supplier to the paint industry of alkyd (sic) refined soya bean oil, or any other supplier would benefit from such a situation. The fact is that the price of soyabean oil is not so much governed today by the absence of a tariff or the existence of duty free rates; it is governed by the need to price that product at a level where it can be sold for its particular end-use, in competition with other oils."(1)

The spokesman for Maple Leaf Mills, while contending that the company would benefit from protection, agreed that the duties on alkyd

(1) Official Report, January 18, 1962, pages 521-2

resins should be reviewed in conjunction with a review of the duties on alkali refined soya bean oil. He stated:

"...I feel that in order to have a duty placed on soya bean oil for paint and varnishes that a whole revision will have to take place on the duty on alkyd resins."(1)

Castor Oil

Castor oil is dutiable under the following tariff items:

<u>Tariff Item</u>	<u>Goods Subject to Duty and Free Goods</u>	<u>B.P.</u>	<u>M.F.N.</u>
259c	Castor oil	Free	Free
277	Oils, hydrogenated, blown, dehydrated or sulphonated, not including blown or hydrogenated fish, seal or whale oils	15 p.c.	20 p.c.

Castor beans are provided for in tariff item 47, duty-free under the British Preferential and Most-Favoured-Nation Tariffs. Castor beans are not grown commercially in Canada, and the Board did not hear of any being imported for crushing. Crude castor oil is, however, imported and processed in Canada; imports were valued at \$523,000 in 1962.

Castor oil has certain characteristics not found in other oils, and the crushers of other oils did not oppose the duty-free status of crude castor oil.

The following three processors of castor oil submitted a joint brief:

Canada Packers Limited, Toronto
Emery Industries (Canada) Limited, London, Ont.
Harchem Limited, Toronto

These firms produce hydrogenated castor oil and castor oil fatty acids which are destined for use in greases, inks, cosmetics, pharmaceuticals, polishes, textiles, candles, leather dressings and protective coatings. Castor oil fatty acids are not within the scope of the present Reference; they are dutiable under tariff item 216, duty-free under the British Preferential Tariff and with a most-favoured-nation rate of 15 p.c. Polyresins Limited, Toronto, a manufacturer of dehydrated and blown castor oil, also submitted a brief.

All these firms sought the retention of the existing duties applicable to castor oil. This stand was supported by the Canadian Paint Varnish and Lacquer Association, most of whose members use processed castor oil and some of whom process it for their own use.

Nopco Chemical Canada Limited and the Tanners Association of Canada proposed that no change be made in tariff item 259c.

No representations were made concerning the need for these particular differentials between the crude and the various processed forms except that the paint manufacturers stated:

"Duty protection for the processed forms of castor oil... appears to be both legitimate and reasonable since such processing is done in Canada."(1)

No representations were made concerning any other form of processing castor oil.

The Consumers

A considerable amount of opposition to increases in duties on oil-seeds and oil-seed products was expressed at the public hearing. The Consumers' Association of Canada and the National Farmers Union opposed increases both on general grounds of national interest and also because of the effects which higher duties would have on the costs of purchases by their members.

Other interests including the Canadian Feed Manufacturers National Association, The Maritime Federation of Agriculture, the Ontario Poultry Council and the Surrey Co-operative Association made strong representations in opposition to the imposition of duties on oilcakes. The Fisheries Council of Canada, the Tanners Association of Canada and a number of individual companies made representations opposing increases in duties on products which they imported. The views of the Canadian Paint Varnish and Lacquer Association Incorporated have been dealt with in an earlier section.

The Consumers' Association of Canada

The Association sent in a written submission strongly opposing any increases in duties under the tariff items before the Board in this Reference.

It contended that tariff increases were only justified under particular circumstances, such as when national security, an infant industry, or the rapid decline of an existing industry was involved. It asserted that in the present case there was no convincing economic argument for raising tariffs and that the burden would fall heavily on low income consumers least able to pay higher prices.

The Association also pointed to the difficulties in Canada's international trading arrangements which, it said, might arise as a result of an increase in Canadian tariffs. Pointing out that Canada was a net exporter of oil-seeds, the Association wrote:

"While we do not condone such action, we can at least understand why an industry interested solely in the Canadian market might wish to acquire more protection, if all the

(1) Official Report, January 18, 1962, page 506

production can continue to be disposed of domestically at the higher prices. But it is more difficult to see why an industry which is to a considerable degree dependent on exports should want to initiate a course of tariff action which in the long run could lose more markets than it gains. Apart altogether from the matter of reprisals, the price effects of the tariff cannot help but adversely affect the competitive position abroad of Canadian oilseeds and oilseed products. Our favourable position on the British market has been built up as the result of a tariff preference in comparison with non-Commonwealth competitors. A rise in Canadian prices alone could in effect eliminate this advantage. Similarly for oilseeds for which our prices have been competitive in Western Europe, an increase in Canadian prices could price our product out of the market.

"It should not be overlooked, too, that restrictive action by Canada against oilseed imports could result in equivalent retaliatory action by the affected country against other Canadian agricultural exports to that country with the resultant effect on incomes of other Canadian producers."(1)

Finally, the Association expressed serious doubt that the producers could justifiably argue financial need. Pointing to the recent devaluation of the dollar and to the record of growth of oilseed production in Canada, the Association wrote:

"The growth which we have witnessed is evidence of the financial attractiveness of production. We would hardly expect land, labour and capital to flood into the industry if they were not being profitably employed. In this regard we would like to warn about the uncritical use of cost estimates in a situation such as this. Undoubtedly, as with any rapidly expanding industry one might find a number of marginal, high cost, producers attracted to the industry. In some cases this may bear witness to the producer's lack of success in some other area. We believe that it is not in the interest of efficient resource allocation to give any weight whatever to the costs of such marginal operations. In other words, if under existing conditions there are some efficient, profitable producers in the industry, their success should be conclusive proof that the industry is viable. Little is to be gained by encouraging marginal and inefficient producers to stay in the industry."(2)

National Farmers Union

The National Farmers Union, in a written submission, opposed any increases in the tariffs included in the present Reference. It pointed to adverse effects which tariff increases might have on Canada's

(1) Official Report, January 17, 1962, pages 495-6

(2) Ibid., page 497

international trading arrangements with other countries, to the resulting increases in costs to consumers and to the resulting increases in costs of feeds used by livestock and dairy farmers. Referring to the assistance which soya bean and sunflower growers have received through the Agriculture Stabilization Act, the Union wrote:

"While we do not wish to argue the adequacy of these support prices at this time, we do wish to emphasize that alternatives to increased tariffs presently exist under price stabilization on certain of these primary products. It is through the medium of the Agriculture Stabilization Act and an adequate deficiency payment program and not through increased tariffs that the interests of both farm people and the consuming public can best be protected without danger of setting off undesirable reaction in consumer prices or world trading relationships."⁽¹⁾

Canadian Feed Manufacturers Association

The Canadian Feed Manufacturers Association presented a brief which was supported by the Ontario Poultry Council.

The spokesman for the Association opposed the proposals to impose duties on soya bean oilcake. He pointed out that in 1959 soya bean oilcake constituted 62 per cent of the protein rich ingredients used by the feed industry. As long as no duty was imposed on soya bean oilcake, he was not particularly concerned about duties on other oilcakes because he believed the prices which could be obtained for them would be determined by the price of soya bean oilcake.

He presented figures illustrating how the costs of farmers using recommended feeding formulas would be affected by the imposition of the proposed duty of \$6.00 per ton on soya bean oilcake. For example, he said it would add eight tenths of a cent to the cost of raising a chicken broiler; he said that even without a duty on oilcake the prices received by farmers for broilers was less than the average cost of production.

The Fish Packing Industry

The Fisheries Council of Canada, in a written submission, urged that tariff items 276a, 276d, 276e and 276f be left unchanged and that the exclusion of fish, seal or whale oils from tariff item 277 be continued.

According to a sample survey conducted for the Board, soya bean oil, followed by cottonseed oil are the ones principally used by the fish packers. In 1962 the firms in the sample purchased about six million pounds of vegetable oils, of which over four million pounds had been imported.

In support of their proposals, the Fisheries Council stated in its brief:

⁽¹⁾ Official Report, January 17, 1962, page 482

"...the economic position of the industry is not sufficiently healthy to absorb additional costs. They would have to be charged against the primary producers - the fishermen.

"Since one of the main concerns of the industry and government alike is to find ways and means of raising the fishermen's income, any step calculated to increase canning costs would be a retrograde one, in our opinion."(1)

Other Representations

The Tanners Association of Canada, in a written submission, sought to safeguard the interests of its members as users of vegetable oils and of products made from vegetable oils. In 1961 the purchases of vegetable oils by the industry were valued at \$94,000; the Association wrote that purchases of products made from vegetable oils were much larger.

The Association proposed that tariff items 258, 259b, 259e, 276e and 276f be left unchanged and that the duties under tariff items 276b and 276c be removed. With regard to the tariff items which they proposed should be left unchanged, they stated that the existing tariff structure had apparently been satisfactory. With regard to tariff items 276b and 276c, they stated that these applied to oils which were of some interest to members of the Association and which, by and large, were not produced in Canada.

The Surrey Co-Operative Association and The Maritime Federation of Agriculture emphasized that Canada was not self-sufficient in soya beans nor in soya bean oilcake, and that other oilcake was not entirely substitutable, so that the imposition of duties would result in increased costs to the users.

(1) Official Report, January 18, 1962, page 564

SUMMARY AND CONCLUSIONS

With the exception of flaxseed and linseed oil, Canadian production of oil-seeds and crude vegetable oils was practically non-existent prior to World War II. However, great technical progress had been made in the processing of oils from cotton seeds, soya beans and other oil-seeds which could be produced in North America, with the result that the oils from these seeds became substitutable for the hard oils available only from tropical countries in many cases.

Wartime shortages of edible oils and fats provided the incentive for the establishment of crushing facilities in Canada and also for the production of soya beans in southwestern Ontario. In the years following the war, partly because of surplus wheat production and consequent quota deliveries, the cultivation of rape seed and sunflower seed commenced in the Prairie Provinces.

Sunflower cultivation has been confined mainly to a small area in Manitoba and has not reached a substantial volume of production. On the other hand, rape seed is grown throughout the Prairie Provinces, thriving particularly in the northern crop area. Rape seed production increased rapidly in the late 1950's, and in the years 1960 and 1961 surpassed in volume the production of soya beans.

Rape seed is chiefly an export product, only a small portion of the crop being processed in Canada; the oil and meal produced are practically all consumed domestically. There have been many problems in the substitution of rapeseed oil and meal for other oil-seed products, but improvements have been made both in the types of seed and in the refining processes, and the market for rape seed products is steadily increasing.

Soya bean production increased almost steadily until 1959 but seems to have levelled off at about seven million bushels annually, or approximately one third of the Canadian market for soya bean products.

The products of soya beans are all very acceptable for many uses and can be substituted for the products of many other oil-seeds. The quality and yield of soya beans grown in Western Ontario are comparable with those in other parts of North America; experiments in other parts of Canada have not as yet produced such satisfactory results. Soya beans have been a profitable crop in Western Ontario, but not sufficiently so to cause the farmers to abandon the growing of other crops to devote sufficient acreage to increase production to the level of Canadian usage. It is not at all certain that such an increase in acreage devoted to soya beans would be practicable or even desirable, having regard to good farming practices and the regional and national economy.

Soya beans have been brought under the provisions of the Agricultural Stabilization Act, but in most years the market price has exceeded the established floor price.

Flaxseed is still by far the most important Canadian oil-seed crop in terms of both quantity and value. It is grown mainly in the Prairie Provinces and production has varied greatly with market

conditions. In recent years flaxseed has been chiefly an export product.

Canada has become one of the chief exporters of flaxseed and rape seed, and has in recent years become a net exporter of oil-seeds and oil-seed products in total. On the other hand the increase in the consumption of vegetable oils and products has resulted in increased imports of oils as well as increased processing of oil-seeds; thus, Canada continues to be a large importer of vegetable oils.

The Ontario Soya-Bean Growers' Marketing Board, Co-Op Vegetable Oils Limited, Alberta Edible Oil Seed Growers, and Mr. Reynold Rapp, M.P., all urged substantial tariffs on oil-seeds and products, and although their interests were not identical, the general burden of their submissions was that tariff protection for the growers would give them a greater share of the domestic market and higher prices. The Soya-Bean Growers' Marketing Board reasoned that higher prices resulting from protection would encourage growers to substitute soya beans for corn and other crops, thus increasing Canadian production of soya beans to nearer the level of Canadian consumption. There was no evidence that the growers in southwestern Ontario were suffering financially on the income from present crops.

Recent reductions in freight rates have improved the position of the producers of both soya beans and rape seed; the reduction in freight on rape seed has, however, created a problem for the western processors who have to meet the increased local price of the seed.

The crushers and processors proposed little change in duties on crude oils provided there were no increases in the duties on oil-seeds; the processors urged the elimination of special end use items providing for free entry of oils for use in the processing of leather, the canning of fish and for use in the manufacture of soap, paint and textiles, and some increases in duties on processed oils.

The crushers and processors of edible oils in Central Canada appear to be at some small disadvantage in costs as compared with their counterparts in the United States; however, under present tariff provisions they have retained a very high proportion of the Canadian market for their products.

The three smaller plants in the Prairie Provinces have a more difficult time. Their problems arise largely from the limited market available to them. In absolute terms it is small and a substantial portion of it is supplied by products from Central Canada. Greater acceptance of the products of rape seed and additional production of sunflower and safflower seed would improve their position.

The Board does not consider that the imposition of duties on vegetable oil-seeds is advisable. Much of our production of oil-seeds is exported, and must for that reason be sold at world prices; because of interchangeability of oils in products, protection could not be achieved without increasing the duties on all oil-seeds, oils and products; the resultant increases in costs and prices would be far out of proportion to the benefit, if any, that might accrue to domestic producers of oil-seeds.

Most of the crushers and processors appear to have adequate protection under the existing rates of duty. However, some adjustment of rates seems advisable, to establish a consistent rate structure and to remove what appear to be anomalies in the existing rate structure.

In general the Board is recommending free entry of oil-seeds and oil-seed cake and meal and of some crude oils not directly competitive with oils produced from domestic oil-seeds. On other crude oils, the Board is recommending continued free entry under the British Preferential Tariff and 10 p.c. under the Most-Favoured-Nation Tariff. On refined and processed oils, for the most part the Board is recommending a British preferential rate of $12\frac{1}{2}$ p.c. and a most-favoured-nation rate of $17\frac{1}{2}$ p.c.

The Board is recommending the deletion of the existing end use tariff items in the Reference with the exception of the provisions for soya bean oil used in the manufacture of paints and varnishes and for vegetable oils used in canning fish. In a number of instances no increases in duties would result from the implementation of these recommendations. In some instances where increases in duties would result, the volume of trade involved is small; this applies, for example, to end use items providing for imports of certain oils for use in manufacturing leather and fabrics. Vegetable oils are used in a great many industries and the Board could see no reason why, in the absence of special circumstances, some users should be selected for special tariff treatment.

The manufacturers of paints and varnishes satisfied the Board that they did, at least for the present, merit special consideration. Alkali refined soya bean oil is a major element in the cost of manufacturing alkyd resins which may be imported at most-favoured-nation rates of 5 p.c. or $12\frac{1}{2}$ p.c. depending upon the form in which they are imported. It would clearly be a hardship for the industry if their supplies of soya bean oil were governed by a most-favoured-nation rate of 20 p.c. along with other refined soya bean oil. Recommended Item VIII would continue the provision for duty-free entry of soya bean oil for use in the manufacture of paints and varnishes; however the Board recommends that this item be reviewed when the recommendations of the Board in Reference 120 - Chemicals, in respect of alkyd resins are being considered.

With respect to vegetable oils used in the canning of fish the Board is not convinced that the deletion of these end use provisions would benefit the vegetable oil industry to any appreciable extent whereas it would add considerably to the costs of the fish canners. The Board was informed that about one half of the Canadian production of canned fish is exported and any duty imposed on the oils used in such exports would, of course, be subject to the export drawback; furthermore on the West Coast the laid-down cost of Canadian produced oils would not appear to be competitive with imported oils even if such imports were subject to the duties being recommended by the Board.

The Board is not recommending duties on oil-seed cake and meal at this time, but any significant change in the preferred entry of these products into the United Kingdom market might warrant reconsideration of this recommendation.

Detailed recommendations are contained in the Recommended Schedule; the changes resulting from these recommendations are outlined in the Notes on Recommended Items and the Notes on Existing Items.

RECOMMENDED SCHEDULE

1. That the following tariff items remain unchanged:

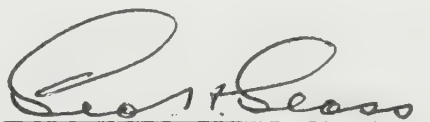
Tariff Item	Goods Subject to Duty and Free Goods	British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff
73a	Cotton seed	Free	Free	10 p.c.
77	Beans, viz:-Tonquin, crude only; locust beans; locust beans, roasted or ground; locust bean meal	Free	Free	Free
585a	Tall oil, tall oil pitch and blended tall oil and tall oil pitch (Note:-This item is being considered by the Tariff Board in Reference 120 - Chemicals).	Free	Free	Free

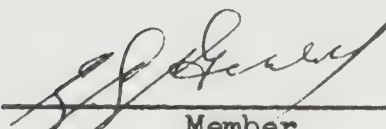
2. That tariff items 47, 47a, 68, 70, Ex 73 mustard seed, Ex 73 sesame seed, 109a, 113a, 114, 258, 259a, 259b, 259c, 266a, 266b, 276a, 276b, 276c, 276d, 276e, 276f, 276g, 277, 663c, Ex 711 peanut oilcake and peanut oilcake meal, 824 and 839, and the enumerations of goods and the rates of duty set opposite each of these items, and tariff items 72d in so far as it refers to rape seed, 76g in so far as it refers to mustard seed and sunflower seed, and 663d in so far as it relates to soya bean oil meal, be struck out and that the following items, enumerations of goods and rates of duty be inserted in the Customs Tariff:

Tariff Item	Goods Subject to Duty and Free Goods	British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff
47	Castor beans	Free	Free	10 p.c.
47a	Soya beans	Free	Free	10 p.c.
70	Flaxseed	Free	Free	10 p.c.
109a	Peanuts, green, in the shell or not further processed than shelled	Free	Free	10 p.c.

Tariff Item	Goods Subject to Duty and Free Goods	British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff
113a	Copra or broken cocoanut meat, not shredded, desiccated, or prepared in any manner	Free	Free	10 p.c.
114	Palm kernels	Free	Free	10 p.c.
258	(1) Linseed or flaxseed oil, raw or boiled	Free	10 p.c.	15 p.c.
	(2) Linseed or flaxseed oil, other than raw or boiled	12½ p.c.	17½ p.c.	25 p.c.
259c	Castor oil, crude	Free	Free	15 p.c.
266a	Tung or china wood oil	Free	Free	15 p.c.
266b	Oiticica oil	Free	Free	15 p.c.
I	Mustard seed	Free	Free	10 p.c.
II	Rape seed	Free	Free	10 p.c.
III	Sesame seed	Free	Free	10 p.c.
IV	Sunflower seed	Free	Free	10 p.c.
V	Oilcake and oilcake meal, including pellets or other shapes			
	(1) Cottonseed	Free	Free	10 p.c.
	(2) Linseed	Free	Free	10 p.c.
	(3) Peanut	Free	Free	10 p.c.
	(4) Soya bean	Free	Free	10 p.c.
	(5) All other, of vegetable origin	Free	Free	10 p.c.
VI	Vegetable oils, crude or crude degummed			
	(1) Cocoanut	Free	10 p.c.	15 p.c.
	(2) Corn	Free	10 p.c.	15 p.c.
	(3) Cottonseed	Free	10 p.c.	15 p.c.
	(4) Palm	Free	10 p.c.	15 p.c.
	(5) Palm kernel	Free	10 p.c.	15 p.c.
	(6) Peanut	Free	10 p.c.	15 p.c.
	(7) Rapeseed	Free	10 p.c.	15 p.c.
	(8) Soya bean	Free	10 p.c.	15 p.c.
	(9) Sunflower seed	Free	10 p.c.	15 p.c.
	(10) All other, n.o.p., and mixtures of vegetable oils, n.o.p.	Free	10 p.c.	15 p.c.

Tariff Item	Goods Subject to Duty and Free Goods	British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff
VII	Vegetable oils, other than crude or crude degummed			
	(1) Coconut	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(2) Corn	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(3) Cottonseed	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(4) Palm	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(5) Palm kernel	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(6) Peanut	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(7) Rapeseed	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(8) Soya bean	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(9) Sunflower seed	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
	(10) All other, n.o.p., and mixtures of vegetable oils, n.o.p.	12 $\frac{1}{2}$ p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.
VIII	Soya bean oil for use in the manufacture of paints and varnishes	Free	Free	15 p.c.
IX	Vegetable oils for use in canning fish	Free	Free	15 p.c.
X	Olive oil	Free	Free	15 p.c.
XI	Cashew nut shell oil	Free	Free	15 p.c.
XII	Soapstocks of vegetable origin with a moisture content of fifty per cent or more by weight, and acid oils of vegetable origin with a free fatty acid content of less than ninety per cent by weight	Free	10 p.c.	15 p.c.


 First Vice-Chairman


 Member

NOTES ON RECOMMENDED ITEMS
relating to oil-seeds, vegetable oils and related products

Recommended Item 47

Castor beans

Free Free 10 p.c.

Recommended Item 47a

Soya beans

Free Free 10 p.c.

Recommended Item 70

Flaxseed

Free Free 10 p.c.

These three Recommended Items would replace existing items 47, 47a, and 70 with no change in wording except the elimination of the letters n.o.p. in items 47 and 47a, and with changes in rates to conform with the recommended rate structure.

In items 47 and 47a the rate change is in the General Tariff only where the recommended rate is 10 p.c. as compared with the existing rate of two cents per pound.

In 1962 whereas domestic consumption of soya beans amounted to about \$45 million, Canadian production amounted to about \$15 million. The market for Canadian grown soya beans has generally been satisfactory and they have been a profitable crop in the areas suitable to their production. There were representations for increases in duty on soya beans, however the Board considers that such action would not necessarily benefit the growers nor, on the whole, would it benefit the Canadian economy.

In item 70 rate changes are recommended under all Tariffs, the existing rates being $7\frac{1}{2}$ cents per bushel under the British Preferential and 10 cents per bushel under the Most-Favoured-Nation and General Tariffs.

Canada now exports large quantities of flaxseed, since 1956 they have averaged about 47 million dollars annually. Imports have been negligible. There seems to be little reason for a duty on flaxseed since Canadian producers must sell the bulk of their crop at world prices.

Recommended Item 109a

Peanuts, green, in the shell or not further processed than shelled

Free Free 10 p.c.

Recommended Item 113a

Copra or broken cocoanut meat, not shredded, desiccated, or prepared in any manner

Free Free 10 p.c.

Recommended Item 114

Palm kernels

Free Free 10 p.c.

These three recommendations continue, unchanged in wording, the provisions of existing items 109a and 113a and 114. The rates are identical with the present rates except in the General Tariff where an ad valorem rate of 10 p.c. is recommended in place of the present specific rates.

Recommended Item 258

(1) Linseed or flaxseed oil, raw or boiled

Free 10 p.c. 15 p.c.

(2) Linseed or flaxseed oil, other than raw or boiled

12½ p.c. 17½ p.c. 25 p.c.

Item 258(1) would continue the provisions of existing item 258, but with rates of duty consistent with the Board's recommendations in regard to most crude vegetable oils; the only significant change would be in the British preferential rate which in the existing item is equivalent to about 8 p.c.; duty-free entry is recommended.

Imports in the past three years have averaged about forty thousand dollars whereas exports of all linseed oils have averaged over one million dollars.

Item 258(2) would provide for processed linseed oils. These are now entered under tariff items 277 or 711 in both of which British preferential rates of 15 p.c. and most-favoured-nation rates of 20 p.c. apply; the effect of the Board's recommendation would be to reduce both these rates by 2½ percentage points.

Recommended Item 259c

Castor oil, crude

Free	Free	15 p.c.
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This item would continue the provisions of existing item 259c for unprocessed castor oil; for consistency a rate of 15 p.c. has been recommended in the General Tariff. Due to the fact that castor oil is not considered competitive with crude oils produced in Canada, continued free entry under the British Preferential and Most-Favoured-Nation Tariffs is recommended. Imports in the past three years have averaged just over \$700,000 annually.

Refined or processed castor oil would fall under Recommended Item VII (10).

Recommended Item 266a

Tung or china wood oil

Free	Free	15 p.c.
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This recommended item would continue the provisions of existing item 266a; the Board is recommending a rate of 15 p.c. under the General Tariff. Tung oil is a distinctive oil used principally in the paint industry. No proposals were made for increases in duties.

Recommended Item 266b

Oiticica oil

Free	Free	15 p.c.
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The Board is recommending continued free entry under the British Preferential and Most-Favoured-Nation Tariffs and a general rate of 15 p.c. instead of the present rate of 2½ cents per pound.

Oiticica oil is used by the paint industry in certain types of paints and varnishes but it is not considered to be competitive with domestically produced oils to any extent. The Canadian Paint Varnish and Lacquer Association proposed the continuation of duty-free entry for oiticica oil under the British Preferential and Most-Favoured-Nation Tariffs.

Recommended Item I

Mustard seed

Free	Free	10 p.c.
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This item would make provision for all mustard seed which now is entered under existing item Ex. 73 at rates of 5 p.c., $7\frac{1}{2}$ p.c. and 15 p.c. and under existing item 76g at rates of 5 p.c., 5 p.c. and 10 p.c. Canada exports substantial quantities of mustard seed with exports over the past five years averaging over two million dollars annually. Imports are not reported separately but are known to be small. In line with its recommendations for other seeds, the Board recommends that mustard seed be duty-free under both the British Preferential and Most-Favoured-Nation Tariffs.

Recommended Item II

Rape seed

Free	Free	10 p.c.
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This item would provide for rape seed, now provided for in existing item 72d at rates of 5 p.c., $7\frac{1}{2}$ p.c. and 10 p.c. under the British Preferential, Most-Favoured-Nation, and General Tariffs respectively.

Since 1957 Canada has exported large quantities of rape seed, averaging in value about thirteen million dollars annually.

Canadian producers must be prepared to meet world competition and, as for other oil-seeds, the Board recommends duty-free entry under both the British Preferential and Most-Favoured-Nation Tariffs.

Recommended Item III

Sesame seed

Free	Free	10 p.c.
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Sesame seed is now entered under tariff item Ex. 73 at rates of Free, $2\frac{1}{2}$ p.c. and 15 p.c. under the British Preferential, Most-Favoured-Nation, and General Tariffs respectively. The recommended item would continue the provision with the deletion of the $2\frac{1}{2}$ p.c. most-favoured-nation rate and a reduction of the general rate to 10 p.c. Imports of sesame seed have been small.

Recommended Item IV

Sunflower seed

Free	Free	10 p.c.
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Sunflower seed for manufacturing purposes is now entered under item 76g at rates of 5 p.c., 5 p.c. and 10 p.c. The recommendation would remove the duties under the British Preferential and Most-Favoured-Nation Tariffs.

Imports, if any, are negligible.

Recommended Item V

Oilcake and oilcake meal, including pellets or other shapes

(1) Cottonseed	Free	Free	10 p.c.
(2) Linseed	Free	Free	10 p.c.
(3) Peanut	Free	Free	10 p.c.
(4) Soya bean	Free	Free	10 p.c.
(5) All other, of vegetable origin	Free	Free	10 p.c.

Most oilcake and oilcake meal is now entered free of duty under all Tariffs; cottonseed, linseed and palm nut under item 68, and soya bean under items 663c and 663d. Peanut oilcake and meal is provided for in Ex. 711 at rates of Free, 5 p.c. and 25 p.c.

The recommendation would provide for entry of all oilcake and oilcake meal at uniform rates, free of duty under the British Preferential and Most-Favoured-Nation Tariffs.

Many agricultural interests urged the free entry of oilcake and oilcake meal because of its use in poultry and livestock feeds. Under present circumstances the domestic producers have been operating successfully without any duties on the important oilcakes and meals.

Recommended Item VI

Vegetable oils, crude or crude degummed

(1) Coconut	Free	10 p.c.	15 p.c.
(2) Corn	Free	10 p.c.	15 p.c.
(3) Cottonseed	Free	10 p.c.	15 p.c.
(4) Palm	Free	10 p.c.	15 p.c.
(5) Palm kernel	Free	10 p.c.	15 p.c.
(6) Peanut	Free	10 p.c.	15 p.c.
(7) Rapeseed	Free	10 p.c.	15 p.c.

(8) Soya bean	Free	10 p.c.	15 p.c.
(9) Sunflower seed	Free	10 p.c.	15 p.c.
(10) All other, n.o.p., and mixtures of vege- table oils, n.o.p.	Free	10 p.c.	15 p.c.

This item would provide, at uniform rates, for almost all crude vegetable oils. Exceptions include castor oil, tung oil, oiticica oil and cashew nut oil, recommended for free entry under the British Preferential and the Most-Favoured-Nation Tariffs. Separate provision is made for linseed oil and olive oil in Recommended Items 258 and X. Soya bean oil for use in the manufacture of paints and varnishes is provided for in Recommended Item VIII.

It was felt that the *ex nomine* listing of the more important oils in Recommended Item VI might be of convenience. The crude oils provided for in Recommended Item VI are now dutiable under the tariff items listed below.

- (1) Coconut oil
Tariff items 276c (1), (2), (3)

Free	10 p.c.	10 p.c.
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Imports, mostly crude, have been substantial, averaging well over five million dollars per annum in value. The recommendation would make no change in the British preferential and most-favoured-nation rates; for consistency it is recommended that the general rate be increased to 15 p.c.

- (2) Corn oil
Tariff item 276g

15 p.c.	20 p.c.	25 p.c.
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This item provides for both crude and refined corn oil; imports of crude oil are understood to have been substantial, and in recent years have been mainly from the United Kingdom. Under the Board's recommendation duties on crude corn oil would be reduced from 15 p.c. to free under the British Preferential Tariff and from 20 p.c. to 10 p.c. under the Most-Favoured-Nation Tariff.

- (3) Cottonseed oil
Tariff items 276a (1), (2)

Free	10 p.c.	10 p.c.
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276a (3) Fish Canning

Free	Free	Free
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Imports under items 276a (1) and (2) have been substantial, mostly from the United States; in recent years they have averaged somewhat over four million dollars in value. The recommended rates would make no change in effective duty, the only change being an increase of 5 percentage points under the General Tariff.

The Board received information indicating substantial use of cottonseed oil in canning fish, but imports are not identifiable in the statistics. Any future imports of cottonseed oil for canning fish would, under the Board's recommendation be dutiable under Recommended Item IX free of duty under both the British Preferential and Most-Favoured-Nation Tariffs.

(4) Palm oil and (5) Palm kernel oil
Tariff items 276b (1), (2), (3)

Free	10 p.c.	10 p.c.
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Imports in recent years have averaged in value about four million dollars; most of the imports are believed to have been crude oil. The recommendation would continue the rates under the British Preferential and Most-Favoured-Nation Tariffs but would raise the general rate from 10 p.c. to 15 p.c.

(6) Peanut oil
Tariff item 276d (1)

Free	10 p.c.	10 p.c.
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276d (2)	Manufacture of soap and canning fish	
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Free	Free	Free
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The statistics of imports do not make a clear distinction between crude and processed oils, but it would appear that almost all imports of crude oil, averaging, in value, just under two million dollars per year have been entered under item 276d (1). The recommended item carries the same British preferential and most-favoured-nation rates as existing item 276d (1); the recommended general rate is 5 percentage points higher than the existing rate.

Any future imports of crude peanut oil for the manufacture of soap would be subject to increased duties under the Most-Favoured-Nation and General Tariffs, those for canning fish would fall under Recommended Item IX.

(7) Rapeseed oil
Tariff item 259b

Free	Free	Free
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Imports of rapeseed oil have been negligible; however in recent years the use in Canada of rapeseed oil has been increasing and crushing and refining facilities have been established in widely separated localities.

Under these circumstances, the Board recommends the same tariff treatment for rapeseed oil as for other vegetable oils.

(8) Soya bean oil

Tariff items 276f (1), (3), (4), (5)

Free Free Free

276f (6) n.o.p.

15 p.c. 20 p.c. 25 p.c.

Imports of soya bean oil have been small relative to the domestic market. They are believed to have been mostly refined oil which would not fall under this recommended item. Virtually all the Trade in crude soya bean oil whether imported or domestic has been governed by the rates under item 276f (6); under the Board's recommendation the British preferential rate would be reduced from 15 p.c. to Free and the most-favoured-nation rate from 20 p.c. to 10 p.c.

(9) Sunflower seed oil

Tariff item 839

Free 10 p.c. 10 p.c.

There have been no imports of sunflower seed oil in six of the past eight years. The recommendation would delete the end use provision and would increase the General Tariff from 10 p.c. to 15 p.c.

(10) All other oils and mixtures of vegetable oils, n.o.p.

Tariff item 259a Sesame seed oil

Free 20 p.c. 25 p.c.

824 Perilla oil

Free Free Free

Imports of sesame seed oil have amounted to about fifteen thousand dollars annually; the Board has no information as to whether these imports were crude or refined oil. The recommendation would reduce the most-favoured-nation and general rates on any crude sesame seed oil by 10 percentage points.

The Board has no statistics on imports of perilla oil but was informed that they are not significant; imports of crude oil, if any, would, under the recommendation, be subject to the same duties as most other crude vegetable oils.

It is also possible that some crude vegetable oils have been entered under tariff item 711 at rates of 15 p.c., 20 p.c. and 25 p.c.; the recommended rates are Free, 10 p.c. and 15 p.c.

Recommended Item VII

Vegetable oils, other than crude or crude degummed

(1) Cocoanut	12½ p.c.	17½ p.c.	25 p.c.
(2) Corn	12½ p.c.	17½ p.c.	25 p.c.
(3) Cottonseed	12½ p.c.	17½ p.c.	25 p.c.
(4) Palm	12½ p.c.	17½ p.c.	25 p.c.
(5) Palm kernel	12½ p.c.	17½ p.c.	25 p.c.
(6) Peanut	12½ p.c.	17½ p.c.	25 p.c.
(7) Rapeseed	12½ p.c.	17½ p.c.	25 p.c.
(8) Soya bean	12½ p.c.	17½ p.c.	25 p.c.
(9) Sunflower seed	12½ p.c.	17½ p.c.	25 p.c.
(10) All other, n.o.p., and mixtures of vegetable oils, n.o.p.	12½ p.c.	17½ p.c.	25 p.c.

With the exception of linseed oil provided for in Recommended Item 258, this recommended item would provide for all refined and further processed vegetable oils regarded as seriously competitive with vegetable oils processed in Canada. Oils not considered seriously competitive include tung oil, oiticica oil, olive oil and cashew nut oil. There would also be the exception of refined soya bean oil for use in the manufacture of paints and varnishes, provided for in Recommended Item VIII and those oils used in canning fish provided for in Recommended Item IX.

Imports of the refined oils covered by this recommendation are now entered under the tariff items listed below.

(1) Cocoanut oil
Tariff item 276c (4)

12½ p.c. 17½ p.c. 17½ p.c.

Imports of refined and processed cocoanut oil have been small; no separate statistics are available but in 1961 the value of imports of refined cocoanut oil would appear to have been about \$45,000.

The recommended rates represent no change under the British Preferential and Most-Favoured-Nation Tariffs but the rate recommended under the General Tariff is 25 p.c. as compared with the present $17\frac{1}{2}$ p.c.

(2) Corn oil
Tariff item 276g

15 p.c. 20 p.c. 25 p.c.

The Board understands that imports of processed corn oil have been negligible. Under the recommended item the duties on any imports of refined corn oil would be reduced by $2\frac{1}{2}$ percentage points under the British Preferential and Most-Favoured-Nation Tariffs.

The effect of the Board's recommendations on both refined and crude corn oil is to bring the rates into line with the rates recommended generally for vegetable oils.

(3) Cottonseed oil
Tariff item 276a (4)

$12\frac{1}{2}$ p.c. $17\frac{1}{2}$ p.c. $17\frac{1}{2}$ p.c.

Imports of refined cottonseed oil have not been large, relative to the domestic market. They have been entered mostly under item 276a (4).

The Board's recommendation represents no change in the British preferential and the most-favoured-nation rates; the only change in rates would be in the General Tariff which would be increased from $17\frac{1}{2}$ p.c. to 25 p.c.

(4) Palm oil and (5) Palm kernel oil
Tariff item 276b (4)

15 p.c. 20 p.c. 25 p.c.

Imports of processed palm and palm kernel oils have not been separately reported in the statistics but are known to have been small. The recommendation would reduce the British preferential and most-favoured-nation rates by $2\frac{1}{2}$ percentage points.

(6) Peanut oil
Tariff item 276d (3)

15 p.c. 20 p.c. 25 p.c.

Imports of refined peanut oil have varied considerably but have not been significant in recent years. The recommendation would reduce the British preferential and most-favoured-nation rates by $2\frac{1}{2}$ percentage points.

(7) Rapeseed oil
Tariff item 259b

Free	Free	Free
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Imports of rapeseed oil have been negligible, averaging around \$10,000 per annum; the division of these imports between crude and refined oil is not known.

The use of refined and processed rapeseed oil in Canada is increasing and there is now an established processing industry located in various localities. Under these circumstances the Board considers refined rapeseed oil should be subject to the same rates of duty as competitive refined vegetable oils.

(8) Soya bean oil
Tariff item 276f (1), (3), (4), (5)

Free	Free	Free
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276f (6)

15 p.c.	20 p.c.	25 p.c.
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277

15 p.c.	20 p.c.	25 p.c.
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The value of annual imports of refined soya bean oil has been about \$3 million. Perhaps one-third of this has been alkali refined oil for use in the manufacture of paints and varnishes; this has been provided for in Recommended Item VIII.

The remainder is believed to have consisted principally of hydrogenated soya bean oil entered under tariff item 277 and refined soya bean oil for fish canning entered under Tariff item 276f (5). Under the existing Tariff there is no differential in the rates of duty on crude soya bean oil and refined soya bean oil. Under the Board's recommendations crude oil would be dutiable at Free under the British Preferential Tariff and at 10 p.c. under the Most-Favoured-Nation Tariff, and refined oil at $12\frac{1}{2}$ p.c. under the British Preferential Tariff and $17\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff. Thus, the duty on refined soya bean oil would be reduced by $2\frac{1}{2}$ percentage points under both the British Preferential and Most-Favoured-Nation Tariffs.

The Board recommends deletion of the end use provisions other than in the manufacture of paints and varnishes and canning fish (see notes on Recommended Items VIII and IX).

(9) Sunflower seed oil
Tariff item 839

Free	10 p.c.	10 p.c.
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Very little sunflower seed oil has been imported since 1951; however, as this oil is interchangeable with other vegetable oils, the Board considers that it should be subject to the same rates of duty. The recommendation would increase the British preferential rate on refined sunflower seed oil from free to $12\frac{1}{2}$ p.c. and the most-favoured-nation rate from 10 p.c. to $17\frac{1}{2}$ p.c.

(10) All other, n.o.p., and mixtures of vegetable oils, n.o.p.
Tariff item 277

15 p.c.	20 p.c.	25 p.c.
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15 p.c.	20 p.c.	25 p.c.
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824 Perilla oil

Free	Free	Free
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There is a considerable variety of other refined vegetable oils and mixtures of refined vegetable oils imported. For the most part it is believed that these fall under items 277 or 711. In either case the effect of the Board's recommendation is to reduce the rates of duty by $2\frac{1}{2}$ percentage points under both the British Preferential and Most-Favoured-Nation Tariffs.

Refined perilla oil now entered Free under tariff item 824 would, if imported, become dutiable under this recommended item at rates of $12\frac{1}{2}$ p.c., $17\frac{1}{2}$ p.c. and 25 p.c. There is no record of imports of perilla oil in recent years.

Recommended Item VIII

Soya bean oil for use in the
manufacture of paints and varnishes

Free	Free	15 p.c.
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This recommended item would replace tariff item 276f (2). The Board recommends that this item be reviewed when the recommendations of Reference 120 - Chemicals, in respect of alkyd resins are being considered.

Recommended Item IX

Vegetable oils for use in
canning fish

Free Free 15 p.c.

The Board has recommended the deletion of the end use items covering certain oils used in canning fish. In their place is recommended the foregoing item which is intended to provide for duty-free entry under the British Preferential and Most-Favoured-Nation Tariffs for all vegetable oils whether crude or refined used in canning fish.

Recommended Item X

Olive oil

Free Free 15 p.c.

This item would provide for the olive oil now entered under item 276e (1), (2), (3) and (4) duty-free from all countries and item 276e (5) which provides duty-free entry under the British Preferential Tariff and rates of 5 p.c. and 20 p.c. under the Most-Favoured-Nation and General Tariffs. Olive oil is not considered to be seriously competitive with other vegetable oils.

Recommended Item XI

Cashew nut shell oil

Free Free 15 p.c.

This item would continue the provision respecting cashew nut shell oil now contained in tariff item 824, and the same British preferential and most-favoured-nation rates, but with an increase in the general rate. The elimination of the reference to end use is not considered significant.

Continuation of free entry was urged and no objection to this proposal was received. Apparently this oil has characteristics which make it valuable in the manufacture of certain resins.

Recommended Item XII

Soapstocks of vegetable origin with a moisture content of fifty per cent or more by weight, and acid oils of vegetable origin with a free fatty acid content of less than ninety per cent by weight

Free 10 p.c. 15 p.c.

Soapstocks and acid oils are both by-products of the edible oil refining industry. They are a source of low grade fatty acids and may be used as substitutes either for crude oils or fatty acids. They are generally used as crude raw materials in the manufacture of soaps, feeds and fatty acids. The refining industry proposed that they should carry the same rates of duties as the crude oils and the Board considers that this is reasonable.

The Board understands that at present they are sometimes classified as crude vegetable oils and sometimes otherwise. The fatty acid producers supported this proposal of the refiners.

NOTES ON EXISTING ITEMS
relating to oil-seeds, vegetable oils and related products

Existing Item 47

47	Castor beans, n.o.p. per pound	Free	Free	2 cts.
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To bring this item into line with the rate structure it is recommending on all edible oil-seeds, the Board recommends that the specific rate of 2 cts. per pound under the General Tariff be changed to an ad valorem rate of 10 p.c. The Board also recommends the deletion of the phrase "n.o.p." as it appears to be unnecessary.

Existing Item 47a

47a	Soya beans, n.o.p. per pound	Free	Free	2 cts.
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As in Item 47, the Board recommends the General Tariff be changed to 10 p.c. and the phrase "n.o.p." be dropped.

Existing Item 68

68	Linseed oil cake and linseed oil cake meal, cotton seed cake and cotton seed cake meal, and palm nut cake and palm nut cake meal	Free	Free	Free
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The Board recommends this item be deleted; the oilcake and oilcake meal now dutiable under it would fall under Recommended Item V. The Board recommends the General Tariff be changed to 10 p.c. to conform with its recommended rate structure.

Existing Item 70

70	Flax seed....per bushel	7½ cts.	10 cts.	10 cts.
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The Board recommends that the existing specific duties be replaced by rates of Free under both the British Preferential and Most-Favoured-Nation Tariffs and by a rate of 10 p.c. under the General Tariff.

Existing Item 72d

72d	Millet and rape seed GATT.....	5 p.c.	10 p.c. 7½ p.c.	10 p.c.
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The Board is recommending a separate item for rape seed - Recommended Item II - so that tariff item 72d would only cover millet.

Existing Items 73, Ex. 73 (Mustard Seed) and Ex. 73 (Sesame Seed)

73	Field Seeds, n.o.p., when in packages weighing more than one pound each.....	5 p.c.	10 p.c.	15 p.c.
	GATT.....		7 $\frac{1}{2}$ p.c.	
Ex. 73	Mustard.....		7 $\frac{1}{2}$ p.c.	
Ex. 73	Sesame.....	Free	2 $\frac{1}{2}$ p.c.	

The Board recommends that mustard seed and sesame seed be classified under separate items - Recommended Items I and III, respectively - and that they be duty-free under both the British Preferential and Most-Favoured-Nation Tariffs and dutiable at 10 p.c. under the General Tariff. The Board received no representations respecting any oil-seeds entered under tariff item 73 and is not recommending any change in that item.

Existing Item 73a

73a	Cotton seed.....	Free	Free	10 p.c.
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The Board is recommending no change in this item since the rates of duty already are those which the Board is recommending on all edible oil-seeds.

Existing Item 76g

76g	Seeds, viz. :-Canary, mustard, celery and sun- flower, when in packages weighing more than one pound each, imported for use exclusively in manu- facturing or blending operations.....	5 p.c.	7 $\frac{1}{2}$ p.c.	10 p.c.
	GATT.....		5 p.c.	

The Board is recommending that the mustard and sunflower seed covered by this item be covered by two separate tariff items, Recommended Items I and IV, respectively, for which the Board is recommending free entry under the British Preferential and Most-Favoured-Nation Tariffs and 10 p.c. under the General Tariff. Otherwise, the Board is recommending no change in this item.

Existing Item 77

77	Beans, viz. :-Tonquin, crude only; locust beans; locust beans, roasted or ground; locust bean meal.....	Free	Free	Free
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The Board received no representations respecting this item. According to the Encyclopaedia Britannica, the tonquin bean, also called the coumara nut, is the seed of two trees native to tropical

South America. The bean contains coumarin, a fragrant chemical substance widely used in perfumery.

Locust beans are the fruit of the carob tree native to the Eastern Mediterranean Region. The beans are primarily used as a stock food but they also are used as a food by man, especially in times of scarcity. Carob gum is extracted from the seeds and is used much like the gum tragacanth in various industries, principally in the food and pharmaceutical industries.

While the Board received no representations respecting this item, and while it may not be of great commercial significance, it seems reasonable that these goods should continue to receive duty-free entry from all countries. Consequently, the Board is recommending no change in the item.

Existing Item 109a

109a	Peanuts, green, in the shell or not further processed than shelled			
	..... per pound	Free	Free	1 ct.

The only change recommended in this item is that the general rate be 10 p.c. rather than the present specific rate of 1 ct. per pound; this would bring it into line with the rates which the Board is recommending on all edible oil-seeds.

Existing Item 113a

113a	Copra or broken coconut meat, not shredded, desiccated or prepared in any manner.....			
	..... per pound	Free	$\frac{3}{4}$ ct.	$\frac{3}{4}$ ct.
	GATT.....		Free	

The Board recommends that the most-favoured-nation rate be Free and that the specific rate of $\frac{3}{4}$ ct. per pound under the General Tariff be changed to a rate of 10 p.c. These changes would bring the item into line with the rates being recommended by the Board on all edible oil-seeds.

Existing Item 114

114	Palm kernels...per pound	Free	Free	4 cts.
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The only change being recommended on this item is in the General Tariff. The Board recommends this rate of 4 cts. per pound be changed to 10 p.c. to bring it into line with the Board's recommended rates on edible oil-seeds.

Existing Item 258

258	Linseed or flaxseed oil, raw or boiled.....			
	..per one hundred pounds	\$1.25	\$1.55	\$1.65

The Board recommends that this item be continued without change in wording as Recommended Item 258(1), with duty-free entry under the British Preferential Tariff and rates of 10 p.c. under the Most-Favoured-Nation Tariff and 15 p.c. under the General Tariff.

The most-favoured-nation rate of \$1.55 per hundred pounds has in recent years been the equivalent of about 10 p.c. ad valorem, so that the Board's recommendation would mean little change in the most-favoured-nation rate.

Existing Item 259a

259a	Sesame seed oil, crude GATT.....	Free	22½ p.c. 20 p.c.	25 p.c.
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The Board recommends that this item be deleted. Crude sesame seed oil would fall under Recommended Item VI(10), duty-free under the British Preferential Tariff, at 10 p.c. under the Most-Favoured-Nation Tariff and 15 p.c. under the General Tariff. The Board knows of no reason why crude sesame seed oil should carry higher rates of duty than other vegetable oils.

Existing Item 259b

259b	Rapeseed oil, crude or refined.....	Free	Free	Free
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The Board recommends that this item be deleted and that crude rapeseed oil be dutiable under Recommended Item VI(7), duty-free under the British Preferential Tariff, at 10 p.c. under the Most-Favoured-Nation Tariff and 15 p.c. under the General Tariff. Refined rapeseed oil would fall under Recommended Item VII(7), as rapeseed oil other than crude, with a British preferential rate of 12½ p.c., a most-favoured-nation rate of 17½ p.c. and a general rate of 25 p.c.

Existing Item 259c

259c	Castor oil.....	Free	Free	Free
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The Board recommends that the word "crude" be added to this item and that the rate under the General Tariff be 15 p.c. Apparently at the present time most imports under this item are "crude"; most processed castor oil is dutiable under tariff item 277 at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. Crude castor oil is processed in Canada and the Board was urged to recommend the retention of duty protection on the refining processes. Under the Board's recommendation castor oil other than crude would fall under Recommended Item VII(10).

Existing Item 266a

266a	China wood oil	Free	Free	Free
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China wood oil is now more commonly referred to as tung oil and the Board is recommending that the item be re-worded to read "tung or china wood oil". Continuation of the duty-free rate under the British Preferential and Most-Favoured-Nation Tariffs and an increase to 15 p.c. under the General Tariff is recommended.

Existing Item 266b

266b	Oiticica oil....per pound	Free	Free	2½ cts.
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The only change recommended by the Board is that the general rate be 15 p.c. Oiticica oil is used by the paint industry in certain paints and varnishes.

Existing Item 276a (1), (2), (3), (4)

276a	(1) Cotton seed oil, crude, when imported to be refined for edible purposes.....	Free	10 p.c.	10 p.c.
	(2) Crude cotton seed oil, when imported by manu- facturers of cotton seed meal and refined cotton seed oil, for use exclus- ively in the manufacture of such commodities, in their own factories....	Free	10 p.c.	10 p.c.
	(3) Cotton seed oil for canning fish.....	Free	Free	Free
	(4) Cotton seed oil, n.o.p.	12½ p.c.	17½ p.c.	17½ p.c.

The Board recommends that crude cottonseed oil without restrictions as to end-use be duty-free under the British Preferential Tariff and dutiable at 10 p.c. under the Most-Favoured-Nation Tariff, under Recommended Item VI(3). Most imports of cottonseed oil now enter at these rates under parts (1) and (2) of the item.

On cottonseed oil other than crude the Board recommends a British preferential rate of 12½ p.c. and a most-favoured-nation rate of 17½ p.c. For the most part this would represent no change in present rates of duty; imports of cottonseed oil for canning fish are believed to be principally in refined form, and they would fall under Recommended Item IX.

Existing Item 276b (1), (2), (3), (4)

276b	(1) Palm and palm kernel oil, crude, when imported to be refined for edible purposes.....	Free	10 p.c.	10 p.c.
	(2) Palm and palm kernel oil, unbleached or bleached, not edible....	Free	10 p.c.	10 p.c.
	(3) Palm and palm kernel oil, not edible, for manufacturing soap.....	Free	10 p.c.	10 p.c.
	(4) Palm and palm kernel oil, n.o.p.....	15 p.c.	20 p.c.	25 p.c.

This item covers palm and palm kernel oil and the Board is recommending that separate items be set up for these two oils. Recommended Item VI(4) would cover imports of crude palm oil and Recommended Item VI(5) would cover imports of crude palm kernel oil. The rates recommended under the British Preferential and Most-Favoured-Nation Tariffs are those now applicable under parts (1), (2) and (3) of the item, namely Free and 10 p.c.; the Board understands that most imports under these three parts are crude oils.

With respect to other than crude, the Board recommends that palm oil be dutiable under Recommended Item VII(4) and palm kernel under Recommended Item VII(5) both at rates of $12\frac{1}{2}$ p.c. under the British Preferential Tariff and $17\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff; for the most part such imports are now dutiable at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. under existing tariff item 276b(4).

Existing Item 276c (1), (2), (3), (4)

276c	(1) Cocoanut oil, crude, when imported to be refined for edible purposes.....	Free	10 p.c.	10 p.c.
	(2) Cocoanut oil, not edible, for manufacturing soap..	Free	10 p.c.	10 p.c.
	(3) Cocoanut oil, not edible, when imported for use in the manufacture of refined cocoanut oil.....	Free	10 p.c.	10 p.c.
	(4) Cocoanut oil, n.o.p. ...	$12\frac{1}{2}$ p.c.	$17\frac{1}{2}$ p.c.	$17\frac{1}{2}$ p.c.

The Board recommends that crude cocoanut oil be dutiable under Recommended Item VI(1), duty-free under the British Preferential Tariff and 10 p.c. under the Most-Favoured-Nation Tariff, which for the most part represents no change. The Board recommends that cocoanut oil other than crude be dutiable under Recommended Item VII(1) at

a British preferential rate of $12\frac{1}{2}$ p.c. and a most-favoured-nation rate of $17\frac{1}{2}$ p.c. which are the rates at present in effect under existing tariff item 276c(4).

Existing Item 276d (1), (2), (3)

276d	(1) Peanut oil, crude, when imported to be refined for edible purposes....	Free	10 p.c.	10 p.c.
	(2) Peanut oil for manufacturing soap or for canning fish.....	Free	Free	Free
	(3) Peanut oil, n.o.p.	15 p.c.	20 p.c.	25 p.c.

The Board recommends that crude peanut oil be dutiable under Recommended Item VI(6), duty-free under the British Preferential Tariff and at 10 p.c. under the Most-Favoured-Nation Tariff, and that peanut oil other than crude be dutiable under Recommended Item VII(6) at rates of $12\frac{1}{2}$ p.c. under the British Preferential Tariff and $17\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff. On most imports of crude peanut oil this would mean no change in existing rates and on most imports of peanut oil other than crude it would mean a reduction of $2\frac{1}{2}$ percentage points in both the British preferential and most-favoured-nation rates.

Imports of peanut oil under tariff item 276d(2), while not reported separately, are believed to have been small in recent years; continuation of the end-use provision for canning fish is recommended by the Board (see Recommended Item IX).

Existing Item 276e (1), (2), (3), (4), (5)

276e	(1) Olive oil for manufacturing soap.....	Free	Free	Free
	(2) Olive oil for manufacturing tobacco..	Free	Free	Free
	(3) Olive oil for canning fish.....	Free	Free	Free
	(4) Olive oil for use in the processing of textile fibres, including the finishing of fabrics.....	Free	Free	Free
	(5) Olive oil, n.o.p.	Free	10 p.c.	20 p.c.
	GATT.....		5 p.c.	

The Board recommends that all imports of olive oil either crude or refined fall under Recommended Item X, duty-free under both the British Preferential and Most-Favoured-Nation Tariffs. In recent years virtually all imports have been entered at the 5 p.c. rate; any imports under tariff item 276e(3) would in future fall under Recommended Item IX. Olive oil is a distinctive oil and apparently it is

not considered, at least in the Canadian market, to be seriously competitive with other edible oils.

Existing Item 276f (1), (2), (3), (4), (5), (6)

276f	(1) Soya bean oil for use in the processing of leather.....	Free	Free	Free
	(2) Soya bean oil for use in the manufacture of paints and varnishes	Free	Free	Free
	(3) Soya bean oil for use in the processing of textile fibres, inclu- ding the finishing of fabrics.....	Free	Free	Free
	(4) Soya bean oil for manu- facturing soap.....	Free	Free	Free
	(5) Soya bean oil for use in canning fish.....	Free	Free	Free
	(6) Soya bean oil, n.o.p.	15 p.c.	20 p.c.	25 p.c.

The Board recommends that crude soya bean oil be classified under Recommended Item VI(8) at a British preferential rate of free and a most-favoured-nation rate of 10 p.c., and that soya bean oil other than crude be dutiable under Recommended Item VII(8) at a British preferential rate of 12½ p.c. and a most-favoured-nation rate of 17½ p.c.

Under the existing Tariff, soya bean oil whether crude or refined is dutiable at a British preferential rate of 15 p.c. and a most-favoured-nation rate of 20 p.c. except when imported under the various end use provisions. The Board is of the opinion that the standard rate structure which it is recommending for other edible vegetable oils should apply also to soya bean oil, with two exceptions.

The first is soya bean oil used in the manufacture of paints and varnishes, which is now duty-free from all countries under tariff item 276f(2). The Board understands that soya bean oil imported under this item is used in the manufacture of alkyd resins which in turn are used in the manufacture of paints and varnishes. Alkyd resins themselves may be imported into Canada at a most-favoured-nation rate of 5 p.c. or 12½ p.c., depending on the form in which they are imported. Alkyd resins are under review in Reference 120 - Chemicals; at the present time the Board is recommending that the provisions of this end use item be continued in Recommended Item VIII and that this item be reviewed when the Board's recommendations in Reference 120 with respect to the duties on alkyd resins are being considered.

The second exception is soya bean oil used in canning fish which would continue duty-free under the British Preferential and Most-Favoured-Nation Tariffs under Recommended Item IX.

Existing Item 276g

276g	Corn oil, crude or refined.....	15 p.c.	20 p.c.	25 p.c.
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The Board recommends that corn oil be dutiable under recommended Item VI(2) when crude and under Recommended Item VII(2) when other than crude. The recommended rates of duty under these two items are the same as those recommended on other edible oils, namely, duty-free under the British Preferential Tariff and 10 p.c. under the Most-Favoured-Nation Tariff on the crude oil and a British preferential rate of $12\frac{1}{2}$ p.c. and most-favoured-nation rate of $17\frac{1}{2}$ p.c. on other than crude oil.

Existing Item 277

277	Oils, hydrogenated, blown, dehydrated or sulphonated, not including blown or hydrogenated fish, seal or whale oils.....	15 p.c.	20 p.c.	25 p.c.
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This item would be replaced with respect to most imports under it by Recommended Item VII(10); both the British preferential and most-favoured-nation rates would be reduced by $2\frac{1}{2}$ percentage points. With the deletion of this item, it is thought that any oils consisting wholly or partly of animal oils now entered under it would become dutiable under tariff item 711 with no change in rates of duty.

Existing Item 585a

585a	Tall oil, tall oil pitch and blended tall oil and tall oil pitch.....	Free	Free	Free
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Tall oil is quite different in its chemical composition from other oils of vegetable origin; it contains large amounts of free fatty acid and resin acid. The Board considers that this item is more appropriately dealt with in the context of Reference No. 120 - Chemicals. It will therefore be covered in the Report on Reference No. 120.

Existing Item 663c

663c	Soya beans, soya bean oil cake and soya bean oil meal, when imported for use as animal or poultry feeds, or as fertilizers, or when imported for use in the manufacture of animal or poultry feeds or fertilizers	Free	Free	Free
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Under the Board's recommendations soya beans for all purposes would continue to enter duty-free under both the British Preferential

and Most-Favoured-Nation Tariffs under Recommended Item 47a, and the soya bean oilcake and soya bean oil meal would also continue to enter duty-free under both the British Preferential and Most-Favoured-Nation Tariffs, for all purposes, under Recommended Item V(4).

Existing Item 663d

663d	Soya bean oil meal and soya bean flour, when imported by manufacturers of glues or adhesives for use exclusively in the manufacture of such glues or adhesives in their own factories.....	Free	Free	Free
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The Board recommends that this item be deleted in so far as it refers to soya bean oil meal. Under the Board's recommendations soya bean oil meal for all purposes would enter duty-free under both the British Preferential and Most-Favoured-Nation Tariffs under Recommended Item V(4). Soya bean flour was not referred to the Board.

Existing Item 711

711	All goods not enumerated in this schedule as subject to any other rate of duty, and not otherwise declared free of duty, and not being goods the importation whereof is by law prohibited.....	15 p.c.	25 p.c.	25 p.c.
	etc...			
	GATT.....		20 p.c.	

There are known to be some vegetable oils and oilcakes not specifically provided for in the Customs Tariff, which, if imported, would now be entered under tariff item 711. Linseed oil other than raw or boiled, which is now dutiable under tariff item 711, would fall under Recommended Item 258(2) at a British preferential rate of $12\frac{1}{2}$ p.c. and a most-favoured-nation rate of $17\frac{1}{2}$ p.c. All oilcakes and oilcake meals are provided for in Recommended Item V, duty-free under both the British Preferential and Most-Favoured-Nation Tariffs. All crude vegetable oils not specified elsewhere are provided for in Recommended Item VI, duty-free under the British Preferential Tariff and 10 p.c. under the Most-Favoured-Nation Tariff. All vegetable oils other than crude, not specified elsewhere, are provided for in Recommended Item VII, $12\frac{1}{2}$ p.c. under the British Preferential Tariff and $17\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff.

Some oils consisting wholly or partly of animal oils may at present be entered under tariff item 277. Under the Board's recommendations such imports, if any, would probably be entered under tariff item 711 with no change in rates of duty.

Existing Item ex. 711 (Peanut Oilcake and Peanut Oilcake Meal)

Ex. 711	Peanut oilcake and peanut oilcake meal	Free	5 p.c.
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The Board recommends that this extract of item 711 be deleted. Peanut oilcake and oilcake meal would, under the Board's recommendations be duty-free under the British Preferential Tariff and also under the Most-Favoured-Nation Tariff, under Recommended Item V(3).

Existing Item 824

824	Perilla oil and cashew nut shell oil, for use in Canadian manufactures	Free	Free	Free
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The Board recommends that this item be deleted. Recommended Item XI would provide for duty-free entry of crude or refined cashew nut shell oil under both the British Preferential and Most-Favoured-Nation Tariffs.

With respect to perilla oil, The Canada Linseed Oil Mills Limited urged the deletion of this special tariff provision, pointing out that perilla oil was competitive with linseed oil. The Board received no other representations respecting perilla oil. Under the Board's recommendations imports of crude perilla oil, if any, would fall under Recommended Item VI(10) as "vegetable oils, crude, all other, n.o.p.", duty-free under the British Preferential Tariff and 10 p.c. under the Most-Favoured-Nation Tariff; if other than crude, imports would fall into Recommended Item VII(10) at rates of $12\frac{1}{2}$ p.c. under the British Preferential Tariff and $17\frac{1}{2}$ p.c. under the Most-Favoured-Nation Tariff.

Existing Item 839

839	Sunflower seed oil for use in Canadian manu- factures	Free	10 p.c.	10 p.c.
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The Board recommends that this item be deleted. Under the Board's recommendations crude sunflower seed oil would fall under Recommended Item VI(9) duty-free under the British Preferential Tariff and at 10 p.c. under the Most-Favoured-Nation Tariff, which are the rates at present in effect under tariff item 839; sunflower seed oil other than crude would fall under Recommended Item VII(9) at a British preferential rate of $12\frac{1}{2}$ p.c. and a most-favoured-nation rate of $17\frac{1}{2}$ p.c.

APPENDIX ISTATISTICS OF IMPORTS AND EXPORTS

<u>Table</u>	<u>Imports</u>	<u>Tariff Item</u>
1	Beans, soya	47a, 663c
2	Cotton seed cake and cotton seed cake meal	68
3	Linseed oil cake and linseed oil cake meal	68
4	Palm nut cake and palm nut cake meal	68
5	Oil cake and meal, n.o.p.	68, 711, ex. 711
6	Flax seed	70
7	Beans, locust, and locust bean meal	77
8	Peanuts, green, shelled or not	109a
9	Copra, not prepared	113a
10	Flaxseed or linseed oil, raw or boiled	258
11	Sesame seed oil	259a
12	Vegetable oil, n.o.p., not edible	259a, 259b, 276g, 711, 824
13	Rapeseed oil, crude or refined	259b
14	Castor oil	259c
15	Chinawood oil	266a
16	Oiticica oil	266b
17	Cotton seed oil, edible	276a
18	Cotton seed oil, not edible	276a(1), (2), (3), (4)
19	Palm oil and palm kernel oil, shea butter	20c, 276b(1), (2), (3), (4)
20	Cocoanut oil, edible	276c

<u>Table</u>	<u>Imports</u>	<u>Tariff Item</u>
21	Cocoanut oil, not edible	276c(1), (2), (3), (4)
22	Peanut oil, edible	276d
23	Peanut oil, not edible	276d(1), (2), (3)
24	Olive oil, edible	276e
25	Olive oil for soap, tobacco and textile finishing	276e
26	Soya bean oil, edible	276f
27	Soya bean oil for manufacturing purposes	276f
28	Oils, hydrogenated, blown, dehydrated or sulphonated, excluding blown or hydrogenated fish, seal or whale oils	277
29	Soya bean oil cake and soya bean oil meal	663c, 663d, 711, 875a
30	Vegetable oils, n.o.p., and mixtures of animal, mineral and vegetable oils, for textiles (cotton softeners)	711, 208t
31	Cashew nut shell oil	824
32	Sunflower seed oil	839

Exports

33	Flax seed n.o.p.
34	Soya beans
35	Rape seed
36	Mustard seed
37	Linseed oil cake and linseed oil cake meal
38	Soya bean oil cake and soya bean oil cake meal
39	Oilseed cake and oil cake meal
40	Linseed or flaxseed oil
41	Soya bean oil
42	Rape seed oil

Table 1

IMPORTS: Beans, soya, s.c. 162

Tariff Items 47a and 663c

<u>Year</u>	<u>Quantity</u> bu.	<u>Value</u> \$	<u>Unit Value</u> \$/bu.
<u>1. Total</u>			
1939	154,191	144,329	.94
1947	1,457,227	5,002,654	3.43
1948	1,445,298	4,937,216	3.42
1949	2,142,222	5,463,983	2.55
1950	4,004,366	12,139,455	3.03
1951	4,658,707	16,437,579	3.53
1952	4,680,315	14,029,875	3.00
1953	4,580,125	12,955,124	2.83
1954	6,873,965	20,997,758	3.05
1955	7,964,248	19,459,525	2.44
1956	9,816,993	24,376,680	2.48
1957	10,416,085	23,727,320	2.28
1958	10,861,314	23,441,521	2.16
1959	13,173,357	28,057,697	2.13
1960	15,208,578	32,203,517	2.12
1961(a)	11,512,266	30,260,642	2.63
1962	13,928,051	37,340,378	2.68
<u>2. United States</u>			
1939	154,174	136,829	.89
1947	1,457,227	5,002,654	3.43
1948	1,445,112	4,935,215	3.42
1949	2,142,059	5,462,120	2.55
1950	4,004,338	12,139,309	3.03
1951	4,658,668	16,437,207	3.53
1952	4,680,262	14,029,484	3.00
1953	4,579,792	12,953,690	2.83
1954	6,873,796	20,996,551	3.05
1955	7,962,396	19,449,822	2.44
1956	9,816,892	24,376,177	2.48
1957	10,415,930	23,726,119	2.28
1958	10,861,259	23,440,848	2.16
1959	13,173,273	28,056,713	2.13
1960	15,208,336	32,200,612	2.12
1961	11,511,785	30,255,724	2.63
1962	13,927,810	37,336,463	2.68

(a) Beginning November 1, 1962, s.c. 1773

Table 2

IMPORTS: Cotton seed cake and cotton seed cake meal, s.c. 1591

Tariff Item 68

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>1. Total</u>			
1939	54,152	69,941	1.29
1947	3,280	18,898	5.76
1948	-	-	-
1949	6,000	21,486	3.58
1950	12,474	37,337	2.99
1951	3,423	13,778	4.03
1952	4,460	16,130	3.62
1953	38,017	95,641	2.52
1954	91,314	309,428	3.39
1955	21,402	68,217	3.19
1956	8,753	26,949	3.08
1957	9,822	28,164	2.87
1958	53,306	130,676	2.45
1959	8,361	27,470	3.29
1960	8,799	24,884	2.83
1961	57,649	178,436	3.10
1962	8,010	32,815	4.10
<u>2. United States</u>			
1939	54,152	69,941	1.29
1947	3,280	18,898	5.76
1948	-	-	-
1949	6,000	21,486	3.58
1950	2,260	8,116	3.59
1951	3,423	13,778	4.03
1952	4,460	16,130	3.62
1953	38,017	95,641	2.52
1954	89,914	305,132	3.39
1955	21,402	68,217	3.19
1956	8,753	26,949	3.08
1957	9,822	28,164	2.87
1958	29,055	75,333	2.59
1959	8,361	27,470	3.29
1960	8,799	24,884	2.83
1961	57,649	178,436	3.10
1962	8,010	32,815	4.10

Table 3

IMPORTS: Linseed oil cake and linseed oil cake meal, s.c. 1592

Tariff Item 68

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>1. Total</u>			
1939	2,140	3,704	1.73
1947	-	-	-
1948	3,000	10,562	3.52
1949	7,900	26,439	3.35
1950	14,349	53,941	3.76
1951	223,881	774,619	3.46
1952	58,954	219,137	3.72
1953	14,700	45,003	3.06
1954	447,895	1,491,056	3.33
1955	241,407	798,433	3.31
1956	206,726	607,160	2.94
1957	51,245	143,032	2.79
1958	6,549	17,909	2.73
1959	5,115	18,054	3.53
1960	29,907	90,410	3.02
1961	4,645	14,052	3.03
1962	2,199	8,196	3.73
<u>2. United States</u>			
1939	2,140	3,704	1.73
1947	-	-	-
1948	3,000	10,562	3.52
1949	7,900	26,439	3.35
1950	13,249	51,234	3.87
1951	223,881	774,619	3.46
1952	58,954	219,137	3.72
1953	14,700	45,003	3.06
1954	447,895	1,491,056	3.33
1955	241,407	798,433	3.31
1956	206,726	607,160	2.94
1957	51,245	143,032	2.79
1958	6,549	17,909	2.73
1959	5,115	18,054	3.53
1960	29,907	90,410	3.02
1961	4,645	14,052	3.03
1962	2,199	8,196	3.73

Table 4

IMPORTS: Palm nut cake and palm nut cake meal, s.c. 1593

Tariff Item 68

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>1. Total</u>			
1939	33,587	32,692	.97
1947	-	-	-
1948	-	-	-
1949	1,206	3,967	3.29
1950	400	1,129	2.82
1951	1,226	3,172	2.59
1952	626	2,211	3.53
1953	120	330	2.75
1954	2,080	6,501	3.13
1955	-	-	-
1956	-	-	-
1957(a)	-	-	-
<u>2. United States</u>			
1939	7,400	8,363	1.13
1947	-	-	-
1948	-	-	-
1949	1,206	3,967	3.29
1950	400	1,129	2.82
1951	1,226	3,172	2.59
1952	626	2,211	3.53
1953	120	330	2.75
1954	2,080	6,501	3.13
1955	-	-	-
1956	-	-	-
1957	-	-	-

(a) s.c. 1593 cancelled January 1, 1958 - any subsequent imports included in s.c. 1597

Table 5

IMPORTS: Oil cake and meal, n.o.p., s.c. 1597

Tariff Items 68, 711, and ex. 711

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1959 ^(a)	3,996	12,637	3.16	-	-
1960	5,900	15,716	2.66	1,287	20.0
1961	49,934	143,744	2.88	6,256	5.0
1962	4,913	23,050	4.69	..	..
<u>2. United States</u>					
1959	3,996	12,637	3.16	-	-
1960	5,900	15,716	2.66	1,287	20.0
1961	6,352	20,353	3.20	87	5.0
1962	4,913	23,050	4.69	..	..

(a) Not reported separately prior to 1959

Table 6

IMPORTS: Flax seed, s.c. 1751

Tariff Item 70

<u>Year</u>	<u>Quantity</u> bu.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/bu.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	1,116,229	1,261,029	1.13	111,622	8.9
1947	832	6,183	7.43	41	.7
1948	14,771	162,081	10.97	1,475	.9
1949	60	474	7.90	5	1.1
1950	417,514	1,451,472	3.48	41,751	2.9
1951	942,646	3,764,148	3.99	94,265	2.5
1952	119,306	596,337	5.00	11,931	2.0
1953	16,183	125,384	7.75	1,618	1.3
1954	243	1,472	6.06	24	1.6
1955	69,217	237,305	3.43	6,922	2.9
1956	1,001,317	3,316,984	3.31	100,132	3.0
1957	8,746	41,302	4.72	874	2.1
1958	96,582	303,319	3.14	9,658	3.2
1959	117,543	431,524	3.67	11,755	2.7
1960	9,834	41,808	4.25	985	2.4
1961	3,310	10,083	3.05	333	3.3
1962	278	1,466	5.27	..	..

2. United States

1939	-	-	-	-	-
1947	152	1,763	11.60	15	.9
1948	14,679	161,332	10.99	1,468	.9
1949	20	131	6.55	2	1.5
1950	417,514	1,451,472	3.48	41,751	2.9
1951	942,646	3,764,148	3.99	94,265	2.5
1952	119,168	595,116	4.99	11,917	2.0
1953	16,183	125,384	7.75	1,618	1.3
1954	46	265	5.76	4	1.5
1955	69,217	237,305	3.43	6,922	2.9
1956	998,437	3,298,519	3.30	99,844	3.0
1957	7,496	32,954	4.40	750	2.3
1958	96,582	303,319	3.14	9,658	3.2
1959	117,472	431,049	3.67	11,747	2.7
1960	9,120	39,183	4.30	913	2.3
1961	3,231	9,504	2.94	325	3.4
1962	278	1,466	5.27

3. Argentina

1939	1,115,895	1,260,209	1.13	111,590	8.9
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Table 7

IMPORTS: Beans, locust, and locust bean meal, s.c. 1811

Tariff Item 77

<u>Year</u>	<u>Quantity</u> lb.	<u>Value</u> \$	<u>Unit Value</u> \$/lb.
<u>1. Total</u>			
1939	244,199	13,032	.053
1947	44,225	4,950	.112
1948	10,716	2,625	.245
1949	17,559	5,511	.314
1950	43,805	6,995	.160
1951	38,076	11,365	.298
1952	29,872	5,034	.169
1953	33,064	5,365	.162
1954	45,732	6,364	.139
1955	114,928	31,316	.272
1956	127,035	33,077	.260
1957	30,636	4,861	.159
1958	48,685	11,562	.237
1959	20,789	3,313	.159
1960	32,536	3,630	.112
1961	113,209	17,903	.158
1962	16,214	3,071	.189
<u>2. United States</u>			
1939	222,056	10,610	.048
1947	27,055	3,975	.147
1948	10,716	2,625	.245
1949	17,559	5,511	.314
1950	29,894	6,022	.201
1951	28,912	6,844	.237
1952	21,622	4,425	.205
1953	21,864	4,656	.213
1954	23,686	4,585	.194
1955	114,928	31,316	.272
1956	113,285	31,462	.278
1957	30,636	4,861	.159
1958	43,185	10,951	.254
1959	15,289	2,660	.174
1960	19,411	2,674	.138
1961	46,532	12,839	.276
1962	16,214	3,071	.189

Table 8

IMPORTS: Peanuts, green, shelled or not, s.c. 94

Tariff Item 109a

<u>Year</u>	<u>Quantity</u> lb.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/lb.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	39,913,971	985,867	.025	273,476	40.8
1947	58,560,633	8,802,160	.150	525,423	6.4
1948	93,296,792	14,260,077	.153	697	6.8
1949	50,314,731	8,135,469	.162	1,433	7.7
1950	65,925,703	7,860,693	.119	-	-
1951	57,084,278	7,151,323	.125	355	7.4
1952	59,004,082	7,127,366	.121	-	-
1953	62,013,368	7,027,653	.113	744	10.5
1954	66,899,140	8,323,063	.124	-	-
1955	72,032,202	7,797,683	.108	-	-
1956	76,557,298	7,663,941	.100	-	-
1957	75,010,210	7,805,725	.104	-	-
1958	72,177,296	7,600,973	.105	-	-
1959	75,231,252	6,707,441	.089	328	9.4
1960	80,591,546	8,778,248	.109	2,535	10.4
1961	75,236,542	8,477,436	.113	960	9.2
1962 ^(a)	95,605,793	10,869,334	.114	..	..

2. Union of South Africa

1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	17,238	2,055	.119	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	914,260	107,315	.117	-	-
1955	10,177,986	1,046,939	.103	-	-
1956	9,082,470	929,526	.102	-	-
1957	12,513,318	1,334,008	.107	-	-
1958	9,166,008	1,060,392	.116	-	-
1959	4,226,840	412,646	.098	-	-
1960	6,595,690	727,501	.110	-	-
1961	2,031,400	233,925	.115	-	-
1962	7,830,368	893,911	.114	..	..

Table 8
(Cont'd)

<u>Year</u>	<u>Quantity</u> lb.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/lb.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. India</u>					
1939	12,622,378	317,685	.025	560	25.3
1947	5,941,474	621,090	.105	-	-
1948	18,283,562	2,095,492	.115	-	-
1949	6,684,063	870,013	.130	-	-
1950	19,815,433	1,873,474	.095	-	-
1951	14,995,790	1,602,846	.107	-	-
1952	17,456,685	1,940,092	.111	-	-
1953	14,957,122	1,448,443	.097	-	-
1954	17,503,005	1,954,708	.112	-	-
1955	18,232,163	1,766,026	.097	-	-
1956	7,206,550	652,846	.091	-	-
1957	-	-	-	-	-
1958	257,000	24,175	.094	-	-
1959	17,317,832	1,445,204	.083	-	-
1960	16,444,508	1,662,118	.101	1,232	12.0
1961	15,567,248	1,601,762	.103	560	9.2
1962	11,370,524	1,266,496	.111	..	..
<u>4. China</u>					
1939	26,896,866	651,764	.024	268,969	41.3
1947	996,400	151,620	.152	9,964	6.6
1948	4,387,900	777,308	.177	-	-
1949	3,615,100	604,830	.167	-	-
1950	22,085,668	2,671,766	.121	-	-
1951	2,196,000	243,359	.111	-	-
1952	-	-	-	-	-
1953	448,000	45,830	.102	-	-
1954	-	-	-	-	-
1955	1,101,602	142,538	.129	-	-
1956	15,872,000	1,757,950	.111	-	-
1957	8,295,599	980,317	.118	-	-
1958	7,542,333	832,097	.110	-	-
1959	5,769,910	607,277	.105	-	-
1960	3,244,582	306,682	.095	-	-
1961	448,040	47,616	.106	-	-
1962	1,838,603	286,583	.156	..	..

Table 8
(Cont'd)

<u>Year</u>	<u>Quantity</u> lb.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/lb.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>5. Mexico</u>					
1939	-	-	-	-	-
1947	1,267,643	178,134	.141	12,676	7.1
1948	588,150	79,387	.135	-	-
1949	8,744,734	1,268,103	.145	-	-
1950	21,006,760	2,768,526	.132	-	-
1951	35,947,827	4,626,182	.129	350	7.7
1952	38,618,638	4,782,993	.124	-	-
1953	42,796,890	5,116,426	.120	-	-
1954	35,415,160	4,342,652	.123	-	-
1955	22,565,976	2,634,031	.117	-	-
1956	30,896,126	3,013,620	.098	-	-
1957	29,752,791	3,055,385	.103	-	-
1958	18,834,531	2,017,435	.107	-	-
1959	10,364,755	1,054,171	.102	-	-
1960	19,446,805	2,191,210	.113	950	9.1
1961	16,483,528	2,114,055	.128	400	9.2
1962	23,820,757	3,135,012	.132	..	..

6. United States

1939	184,669	11,294	.061	1,847	16.4
1947	50,181,147	7,827,487	.156	501,812	6.4
1948	69,954,717	11,301,280	.162	697	6.8
1949	29,649,254	5,115,941	.173	-	-
1950	2,980,104	541,688	.182	-	-
1951	3,800,598	657,852	.173	5	1.7
1952	1,146,737	197,682	.172	-	-
1953	401,180	65,219	.163	-	-
1954	6,286,939	1,174,911	.187	-	-
1955	3,502,226	334,207	.095	-	-
1956	5,034,343	408,402	.081	-	-
1957	23,578,667	2,330,745	.099	-	-
1958	22,803,547	2,246,149	.098	-	-
1959	35,437,814	2,971,545	.084	328	9.4
1960	20,625,698	2,177,814	.106	353	9.7
1961	32,295,707	3,473,531	.108	-	-
1962	15,797,133	1,883,995	.119	..	..

(a) Beginning November, 1962, s.c. 1771

Table 9

IMPORTS: Copra, not prepared, s.c. 84

Tariff Item 113a

<u>Year</u>	<u>Quantity</u> lb.	<u>Value</u> \$	<u>Unit Value</u> \$/lb.
<u>1. Total</u>			
1939	-	-	-
1947	77,089,745	7,354,059	.095
1948	74,254,033	9,456,937	.127
1949	56,835,523	4,681,662	.082
1950	48,325,430	4,815,415	.100
1951	59,192,714	6,640,341	.112
1952	69,115,871	4,531,567	.066
1953	24,828,590	2,111,121	.085
1954	46,719,285	3,580,332	.077
1955	16,848,607	1,159,624	.069
1956	25,528,000	1,579,717	.062
1957	33,585,502	2,219,387	.066
1958	11,373,345	913,060	.080
1959	-	-	-
1960	-	-	-
1961	-	-	-
1962(a)	-	-	-
<u>2. Philippines</u>			
1939	-	-	-
1947	77,089,745	7,354,059	.095
1948	40,000,110	5,430,932	.136
1949	37,690,830	2,993,001	.079
1950	42,657,275	4,272,967	.100
1951	59,192,714	6,640,341	.112
1952	64,629,461	4,321,905	.067
1953	24,828,590	2,111,121	.085
1954	42,037,285	3,246,586	.077
1955	16,848,607	1,159,624	.069
1956	23,288,000	1,437,483	.062
1957	33,585,502	2,219,387	.066
1958	9,133,345	753,000	.082
1959	-	-	-
1960	-	-	-
1961	-	-	-
1962	-	-	-

(a) Beginning November 1, 1962, s.c. 1767

Table 10

IMPORTS: Flaxseed or linseed oil, raw or boiled, s.c. 1608

Tariff Item 258

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	8,128	47,271	5.82	11,837	25.0
1947	2,873	92,996	32.37	4,452	4.8
1948	897	35,779	39.89	1,387	3.9
1949	974	31,018	31.85	1,500	4.8
1950	6,053	108,278	17.89	9,270	8.7
1951	147,047	2,844,478	19.34	227,922	8.0
1952	20,340	404,768	19.90	31,526	7.8
1953	790	17,468	22.11	1,223	7.0
1954	3,241	42,469	13.10	4,350	10.2
1955	1,708	30,795	18.03	2,649	8.6
1956	12,374	185,219	14.97	19,177	10.4
1957	1,341	24,701	18.42	2,071	8.4
1958	1,583	29,787	18.82	2,458	8.3
1959	10,399	131,320	12.63	16,096	12.3
1960	3,497	52,802	15.10	5,551	10.5
1961	1,209	29,332	24.26	2,324	7.9
1962	1,835	42,606	23.22	..	..
<u>2. United Kingdom</u>					
1939	1,999	11,380	5.69	2,311	20.3
1947	-	-	-	-	-
1948	11	266	24.18	14	5.3
1949	31	375	12.10	38	10.1
1950	29	521	17.97	36	6.9
1951	2	30	15.00	2	6.7
1952	4	107	26.75	5	4.7
1953	-	-	-	-	-
1954	2,248	19,097	8.50	2,810	14.7
1955	20	300	15.00	28	9.3
1956	12	360	30.00	15	4.2
1957	9	243	27.00	11	4.5
1958	1	50	50.00	1	2.0
1959	71	813	11.45	89	10.9
1960	36	846	23.50	44	5.2
1961	37	918	24.81	48	5.2
1962	-	-	-	-	-

Table 10
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. United States</u>					
1939	889	11,419	12.84	1,378	12.1
1947	2,873	92,996	32.37	4,452	4.8
1948	886	35,513	40.08	1,373	3.9
1949	943	30,643	32.50	1,462	4.8
1950	6,024	107,757	17.89	9,234	8.7
1951	13,132	259,307	19.75	20,355	7.8
1952	20,336	404,661	19.90	31,521	7.8
1953	790	17,468	22.11	1,223	7.0
1954	993	23,372	23.54	1,540	6.6
1955	1,688	30,495	18.07	2,621	8.6
1956	12,362	184,859	14.95	19,162	10.4
1957	1,332	24,458	18.36	2,060	8.4
1958	1,573	29,476	18.74	2,443	8.3
1959	6,632	88,229	13.30	10,278	11.6
1960	3,460	51,902	15.00	5,506	10.6
1961	1,077	26,536	24.64	1,959	7.4
1962	1,659	38,782	23.38	..	..

Table 11

IMPORTS: Sesame seed oil, s.c. 1618

Tariff Item 259a

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	5,689	..	1,388	24.4
1947	10	548	54.80	123	22.4
1948	159	8,030	50.50	1,807	22.5
1949	226	9,990	44.20	2,244	22.5
1950	208	6,796	32.67	1,408	20.7
1951	131	5,158	39.37	1,032	20.0
1952	146	6,365	43.60	1,273	20.0
1953	173	6,644	38.40	1,329	20.0
1954	304	9,755	32.09	1,951	20.0
1955	212	7,612	35.91	1,522	20.0
1956	158	5,907	37.39	1,181	20.0
1957(a)	515	18,030	35.01	3,606	20.0
1958	479	15,894	33.18	3,179	20.0
<u>2. Hong Kong</u>					
1939	..	249	..	62	24.9
1947	-	-	-	-	-
1948	149	7,448	49.99	1,676	22.5
1949	197	8,805	44.70	1,977	22.5
1950	143	4,643	32.47	971	20.9
1951	95	4,008	42.19	802	20.0
1952	139	5,961	42.88	1,192	20.0
1953	102	4,387	43.01	878	20.0
1954	101	3,721	36.84	744	20.0
1955	68	2,893	42.54	579	20.0
1956	50	2,024	40.48	405	20.0
1957	144	5,437	37.76	1,087	20.0
1958	117	4,306	36.80	861	20.0

Table 11
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. United States</u>					
1939	..	2,932	..	703	24.0
1947	10	548	54.80	123	22.4
1948	10	582	58.20	131	22.5
1949	29	1,185	40.86	267	22.5
1950	65	2,153	33.12	437	20.3
1951	36	1,150	31.94	230	20.0
1952	7	404	57.71	81	20.0
1953	71	2,257	31.79	451	20.0
1954	199	5,923	29.76	1,185	20.0
1955	144	4,719	32.77	943	20.0
1956	108	3,883	35.95	776	20.0
1957	354	11,898	33.61	2,380	20.0
1958	357	11,374	31.86	2,275	20.0

(a) s.c. 1618 discontinued January 1, 1959. Imports included in s.c. 1620 thereafter.

Table 12

IMPORTS: Vegetable oil, n.o.p., not edible, s.c., 1620

Tariff Items 259a, 259b, 276g, 711 and 824

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	231,269	..	43,453	18.8
1947	5,497	157,409	28.64	31,397	20.0
1948	1,106	32,248	29.16	6,324	19.6
1949	212,661	3,332,094	15.67	666,392	20.0
1950	79,601	1,526,186	19.17	303,868	19.9
1951	83,679	2,066,257	24.69	411,934	20.0
1952	103,573	1,496,820	14.45	298,811	20.0
1953	124,233	1,947,256	15.67	389,204	20.0
1954	160,648	2,478,209	15.43	495,488	20.0
1955	148,550	2,145,997	14.45	428,898	20.0
1956	126,849	1,826,036	14.40	362,721	20.0
1957	168,292	2,403,593	14.28	480,714	20.0
1958	183,264	2,543,342	13.88	490,524	19.4
1959 ^(a)	146,979	1,871,342	12.73	310,731	16.8
1960	141,497	1,836,106	12.98	306,941	16.9
1961	172,778	2,977,491	17.23	476,795	17.1
1962	158,516	2,945,011	18.58	..	..
<u>2. United Kingdom</u>					
1939	..	63,255	..	9,546	15.1
1947	-	-	-	-	-
1948	64	2,521	39.39	378	15.0
1949	37	1,372	37.08	246	17.9
1950	1,174	23,669	20.16	3,550	15.0
1951	85	2,723	32.04	408	15.0
1952	23	660	28.70	99	15.0
1953	158	4,263	26.98	639	15.0
1954	146	3,073	21.05	461	15.0
1955	297	5,323	17.92	753	15.0
1956	268	5,693	21.24	853	15.0
1957	2	97	48.50	15	15.5
1958	23,384	287,199	12.28	43,080	15.0
1959	95,892	1,177,310	12.28	174,826	15.0
1960	93,743	1,107,724	11.82	166,098	15.0
1961	93,365	1,462,506	15.66	218,376	14.9
1962	60,686	1,212,687	19.98	..	..

Table 12
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. United States</u>					
1939	..	134,433	..	27,110	20.2
1947	5,497	157,409	28.64	31,397	20.0
1948	1,039	29,622	28.51	5,925	20.0
1949	212,624	3,330,722	15.66	666,146	20.0
1950	78,427	1,502,517	19.16	300,318	20.0
1951	83,594	2,063,534	24.69	411,526	20.0
1952	103,550	1,496,160	14.45	298,712	20.0
1953	124,075	1,942,993	15.66	388,565	20.0
1954	159,864	2,460,556	15.39	492,111	20.0
1955	148,153	2,138,685	14.44	427,747	20.0
1956	126,581	1,820,343	14.38	361,868	20.0
1957	168,150	2,399,199	14.27	479,840	20.0
1958	156,199	2,205,906	14.12	437,784	20.0
1959	50,431	677,355	13.43	132,803	20.0
1960	47,007	712,772	15.16	137,721	20.0
1961	53,166	1,169,357	21.99	233,241	20.0
1962	51,113	1,061,101	20.76	..	..

(a) Beginning in January 1959 s.c. 1620 includes former s.c. 1618 and 1621, and is entitled "Vegetable oils, crude and refined, n.o.p.".

Table 13

IMPORTS: Rapeseed oil, crude or refined, s.c. 1621

Tariff Item 259b

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>1. Total</u>			
1939	..	44,463	..
1947	17	670	39.41
1948	5	210	42.00
1949	-	-	-
1950	732	14,892	20.34
1951	5,639	136,329	24.18
1952	1,527	27,225	17.83
1953	-	-	-
1954	44	1,020	23.18
1955	321	8,028	25.01
1956	588	15,430	26.24
1957	-	-	-
1958(a)	280	5,948	21.24
<u>2. United Kingdom</u>			
1939	..	7,499	..
1947	-	-	-
1948	-	-	-
1949	-	-	-
1950	-	-	-
1951	-	-	-
1952	-	-	-
1953	-	-	-
1954	44	1,020	23.18
1955	300	7,688	25.63
1956	480	13,199	27.50
1957	-	-	-
1958	280	5,948	21.24

(a) s.c. 1621 discontinued January 1, 1959. Imports included in s.c. 1620 thereafter.

Table 14

IMPORTS: Castor oil, s.c. 1601

Tariff Item 259c

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	31,403	173,858	5.54	10,035	18.7
1947	60,585	1,497,010	24.71	41,679	18.9
1948	55,414	1,155,099	20.84	24,904	18.6
1949	58,809	999,170	16.99	-	-
1950	66,468	1,328,331	19.98	-	-
1951	51,867	1,632,509	31.47	6,401	20.0
1952	34,748	929,561	26.75	12,556	20.0
1953	49,114	941,203	19.16	6,935	20.0
1954	34,759	425,364	12.24	2,765	20.0
1955	65,306	841,033	12.88	9,478	20.0
1956	50,355	752,466	14.94	7,818	19.9
1957	56,730	1,194,604	21.06	7,503	20.0
1958	48,243	751,654	15.58	12,335	20.0
1959	59,206	827,956	13.98	232	18.0
1960	46,486	856,734	18.43	218	20.0
1961	50,580	710,563	14.05	485	20.0
1962	38,445	523,030	13.60	..	..
<u>2. India</u>					
1939	19,791	89,888	4.54	-	-
1947	22,954	562,436	24.50	-	-
1948	221	5,944	26.90	-	-
1949	-	-	-	-	-
1950	5,563	91,655	16.48	-	-
1951	9,579	238,209	24.87	-	-
1952	7,363	161,949	21.99	-	-
1953	2,130	43,802	20.56	-	-
1954	670	8,975	13.40	-	-
1955	1,003	12,093	12.06	-	-
1956	444	7,083	15.95	-	-
1957	221	4,567	20.67	-	-
1958	249	3,993	16.04	-	-
1959	289	4,859	16.81	-	-
1960	3,486	70,242	20.15	-	-
1961	285	5,203	18.26	-	-
1962	218	5,866	26.91	..	..

Table 14
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. Brazil</u>					
1939	-	-	-	-	-
1947	19,776	438,957	22.20	4,281	17.5
1948	41,041	819,403	19.97	4,776	16.9
1949	46,355	740,724	15.98	-	-
1950	38,688	702,431	18.16	-	-
1951	28,974	919,303	31.73	-	-
1952	15,178	400,610	26.39	-	-
1953	36,688	663,828	18.09	-	-
1954	29,124	335,750	11.53	-	-
1955	54,552	672,902	12.34	-	-
1956	46,230	662,063	14.32	-	-
1957	52,689	1,092,324	20.73	-	-
1958	42,006	630,211	15.00	-	-
1959	39,680	557,590	14.05	-	-
1960	32,819	606,054	18.47	-	-
1961	42,387	568,590	13.41	-	-
1962	30,393	384,937	12.67	..	..
<u>4. United States</u>					
1939	5,333	48,849	9.16	9,311	19.1
1947	13,650	399,120	29.24	33,067	19.4
1948	14,064	327,663	23.30	20,128	19.0
1949	10,927	234,867	21.49	-	-
1950	18,790	471,672	25.10	-	-
1951	10,879	412,275	37.90	6,401	20.0
1952	10,486	323,444	30.85	12,556	20.0
1953	8,562	198,704	23.21	6,935	20.0
1954	4,780	77,611	16.24	2,765	20.0
1955	9,707	155,287	16.00	9,478	20.0
1956	3,618	81,618	22.56	7,687	20.0
1957	3,767	96,530	25.63	7,503	20.0
1958	3,262	87,746	26.90	12,335	20.0
1959	1,631	32,101	19.68	232	18.0
1960	3,000	59,952	19.98	218	20.0
1961	901	25,072	27.83	485	20.0
1962	4,252	81,797	19.24	..	..

Table 15

IMPORTS: Chinawood oil, s.c. 1602

Tariff Item 266a

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>1. Total</u>			
1939	48,698	908,323	18.65
1947	59,358	1,673,402	28.19
1948	84,825	2,015,532	23.76
1949	76,400	1,738,810	22.76
1950	72,540	1,954,932	26.95
1951	43,792	1,638,525	37.42
1952	52,287	1,680,331	32.14
1953	40,743	839,655	20.61
1954	44,644	746,810	16.73
1955	44,897	1,108,771	24.70
1956	33,905	834,490	24.61
1957	37,189	751,850	20.22
1958	47,123	785,221	16.66
1959	47,529	667,432	14.04
1960	31,469	523,327	16.63
1961	29,027	756,578	26.06
1962	26,191	1,039,104	39.67
<u>2. United Kingdom</u>			
1939	-	-	-
1947	-	-	-
1948	-	-	-
1949	-	-	-
1950	-	-	-
1951	6,136	230,794	37.61
1952	12,007	379,855	31.64
1953	7,650	143,407	18.75
1954	22,549	370,299	16.42
1955	3,483	82,948	23.82
1956	269	6,918	25.72
1957	1,013	18,280	18.05
1958	110	1,438	13.07
1959	-	-	-
1960	224	4,085	18.24
1961	-	-	-
1962	-	-	-

Table 15
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>3. Hong Kong</u>			
1939	2,586	42,733	16.52
1947	963	39,299	40.81
1948	1,890	47,978	25.39
1949	840	20,234	24.09
1950	972	22,011	22.65
1951	2,072	76,335	36.84
1952	13,299	414,344	31.16
1953	12,121	265,774	21.93
1954	1,288	22,536	17.50
1955	1,512	34,299	22.68
1956	3,858	85,011	22.03
1957	16,525	298,552	18.07
1958	12,297	137,863	11.21
1959	1,008	8,744	8.67
1960	4,327	64,464	14.90
1961	885	20,494	23.16
1962	874	32,331	36.99
<u>4. Argentina</u>			
1939	-	-	-
1947	-	-	-
1948	-	-	-
1949	556	15,421	27.74
1950	1,310	36,832	28.12
1951	11,909	472,523	39.68
1952	2,701	107,340	39.74
1953	-	-	-
1954	598	13,781	23.05
1955	25,421	668,838	26.31
1956	12,802	368,567	28.79
1957	15,306	353,795	23.11
1958	22,975	502,581	21.88
1959	2,315	52,463	22.66
1960	4	126	31.50
1961	11,948	356,081	29.80
1962	21,155	841,251	39.77

Table 15
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>5. United States</u>			
1939	45,797	859,348	18.76
1947	53,277	1,486,312	27.90
1948	80,435	1,912,026	23.77
1949	73,889	1,682,242	22.77
1950	67,208	1,819,915	27.08
1951	20,853	755,454	36.23
1952	4,650	185,328	39.86
1953	2,786	75,213	27.00
1954	347	6,229	17.95
1955	8,935	209,158	23.41
1956	4,383	107,051	24.42
1957	1,379	30,035	21.78
1958	36	1,201	33.36
1959	31,423	434,390	13.82
1960	18,479	323,870	17.53
1961	10,386	224,725	21.64
1962	4,162	165,522	39.77

Table 16

IMPORTS: Oiticica oil, s.c. 1623

Tariff Item 266b

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>1. Total</u>			
1939	-	-	-
1947	1,972	58,180	29.50
1948	966	19,919	20.62
1949(a)	1,724	35,296	20.47
1950	1,962	41,903	21.36
1951	2,691	79,307	29.47
1952	2,303	57,561	24.99
1953	572	14,413	25.20
1954	702	12,813	18.25
1955	2,092	27,203	13.00
1956	4,301	64,479	14.99
1957	1,699	25,917	15.25
1958	1,012	16,143	15.95
1959	22	461	20.95
1960	1,314	17,623	13.41
1961	4,575	67,341	14.72
1962	6,909	121,580	17.60
<u>2. Brazil</u>			
1939	-	-	-
1947	1,959	57,858	29.53
1948	966	19,919	20.62
1949	1,724	35,296	20.47
1950	1,931	41,092	21.28
1951	2,537	74,451	29.35
1952	1,987	49,608	24.97
1953	420	10,400	24.76
1954	479	8,609	17.97
1955	1,902	24,192	12.72
1956	2,277	36,522	16.04
1957	1,018	16,267	15.98
1958	1,012	16,143	15.95
1959	22	461	20.95
1960	1,314	17,623	13.41
1961	2,210	33,314	15.07
1962	5,587	98,762	17.68

Table 16
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>3. United States</u>			
1939	-	-	-
1947	13	322	24.77
1948	-	-	-
1949	-	-	-
1950	31	811	26.16
1951	154	4,856	31.53
1952	316	7,953	25.17
1953	152	4,013	26.40
1954	223	4,204	18.85
1955	190	3,011	15.85
1956	2,024	27,957	13.81
1957	681	9,650	14.17
1958	-	-	-
1959	-	-	-
1960	-	-	-
1961	2,365	34,027	14.39
1962	1,322	22,818	17.26

(a) Prior to 1950 this class read "Oiticica oil for use in Canadian manufactures".

Table 17

IMPORTS: Cotton seed oil, edible, s.c. 233

Tariff Item 276a

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	149,540	..	5,558	16.1
1947	803	20,318	25.30	3,475	17.5
1948	1,951	56,477	28.95	3,343	17.5
1949	87,176	1,327,246	15.22	227,681	17.5
1950	78,714	1,389,790	17.66	241,086	17.5
1951	17,858	425,255	23.81	64,882	17.3
1952	14,736	238,430	16.18	39,619	18.3
1953	17,051	290,011	17.01	50,731	17.5
1954	30,385	499,397	16.44	92,203	18.5
1955	11,539	188,415	16.33	35,402	18.8
1956	8,182	141,404	17.28	26,483	18.7
1957	22,786	363,407	15.95	64,791	17.8
1958 ^(a)	25,734	373,548	14.52	64,356	17.5
<u>2. United States</u>					
1939	..	39,742	..	4,320	17.5
1947	803	20,318	25.30	3,475	17.5
1948	1,315	40,341	30.68	519	17.5
1949	87,176	1,327,246	15.22	227,681	17.5
1950	78,480	1,385,175	17.65	240,509	17.5
1951	17,858	425,255	23.81	64,882	17.3
1952	14,736	238,430	16.18	39,619	18.3
1953	17,051	290,011	17.01	50,731	17.5
1954	30,364	498,878	16.43	92,099	18.5
1955	11,539	188,415	16.33	35,402	18.8
1956	8,182	141,404	17.28	26,483	18.7
1957	22,786	363,407	15.95	64,791	17.8
1958	25,734	373,548	14.52	64,356	17.5

(a) s.c. 233 discontinued January 1, 1959. Imports included in s.c. 1605 and 1628 thereafter.

Table 18

IMPORTS: Cotton seed oil, not edible, s.c. 1605

Tariff Items 276a(1), (2), (3) and (4)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	103,715	582,088	5.61	44,320	10.0
1947(a)	49,321	1,451,555	29.43	145,156	10.0
1948	120,758	3,368,242	27.89	336,824	10.0
1949	593,353	7,238,300	12.20	723,830	10.0
1950	842,854	12,233,995	14.51	1,178,079	10.0
1951	290,157	6,158,939	21.23	615,894	10.0
1952	642,421	7,725,354	12.03	772,536	10.0
1953	465,196	6,286,964	13.51	628,683	10.0
1954	527,185	6,858,966	13.01	681,017	10.0
1955	267,662	3,251,674	12.15	325,167	10.0
1956	325,106	4,400,432	13.54	440,043	10.0
1957	280,072	3,557,188	12.70	355,719	10.0
1958	229,453	2,777,158	12.10	269,993	10.0
1959(b)	373,475	4,038,065	10.81	362,025	10.8
1960	458,012	4,508,457	9.84	499,958	11.3
1961	415,695	5,429,717	13.06	618,255	11.6
1962	332,831	4,193,145	12.60	..	..
<u>2. United States</u>					
1939	66,981	443,197	6.62	44,320	10.0
1947	8	267	33.38	27	10.0
1948	13,075	254,637	19.48	25,464	10.0
1949	582,857	7,033,742	12.07	703,374	10.0
1950	773,196	11,080,372	14.33	1,108,037	10.0
1951	192,709	3,641,837	18.90	364,184	10.0
1952	642,421	7,725,354	12.03	772,536	10.0
1953	465,196	6,286,964	13.51	628,683	10.0
1954	523,825	6,810,173	13.00	681,017	10.0
1955	267,662	3,251,674	12.15	325,167	10.0
1956	324,320	4,391,157	13.54	439,116	10.0
1957	278,129	3,535,247	12.71	353,525	10.0
1958	222,185	2,694,131	12.13	269,413	10.0
1959	324,719	3,365,624	10.36	362,025	10.8
1960	450,522	4,413,000	9.80	499,958	11.3
1961	409,114	5,330,012	13.03	618,255	11.6
1962	270,802	3,396,272	12.54	..	..

(a) Prior to 1948 this class read "Cotton seed and crude cotton seed oil, for the manufacture of refined cotton seed oil and meal".

(b) Beginning in 1959 s.c. 1605 includes part of former s.c. 233, and is entitled "Cottonseed oils, crude and refined".

Table 19

IMPORTS: Palm oil and palm kernel oil, shea butter, s.c. 1611

Tariff Items 20c, 276b(1), (2), (3) and (4)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939 ^(a)	738,077	1,912,494	2.59	55,491	10.0
1947	141,775	1,279,094	9.02	78,742	10.0
1948	180,191	2,799,458	15.54	168,196	10.0
1949	127,248	1,681,036	13.21	159,449	10.0
1950	148,040	1,857,541	12.55	152,387	10.0
1951	116,109	2,157,385	18.58	215,917	10.0
1952	83,786	887,232	10.59	98,492	11.1
1953	284,541	2,538,438	8.92	229,521	10.6
1954	540,753	5,093,117	9.42	185,084	10.4
1955	434,767	4,303,418	9.90	233,014	10.4
1956	363,463	4,050,238	11.14	107,293	11.4
1957	391,935	4,180,321	10.67	156,570	11.3
1958	404,599	4,026,530	9.95	73,586	15.9
1959	316,693	3,248,184	10.26	72,783	13.4
1960	181,959	1,866,598	10.26	38,347	14.7
1961	523,259	5,205,240	9.95	10,761	11.1
1962	361,657	3,544,780	9.80	..	..
<u>2. Malaya and Singapore</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	24,851	211,471	8.51	-	-
1954	277,177	2,569,631	9.27	-	-
1955	103,183	990,647	9.60	-	-
1956	251,881	2,778,713	11.03	-	-
1957	225,921	2,377,810	10.52	-	-
1958	331,881	3,133,157	9.44	-	-
1959	245,004	2,326,612	9.50	-	-
1960	143,670	1,312,781	9.14	-	-
1961	455,506	4,447,765	9.76	5,970	10.0
1962	286,363	2,737,660	9.56	..	..

Table 19
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. Belgian Congo</u>					
1939	-	-	-	-	-
1947	74,447	787,076	10.57	78,707	10.0
1948	73,557	1,482,199	20.15	148,220	10.0
1949	27,983	207,134	7.40	20,714	10.0
1950	107,312	1,268,666	11.82	126,867	10.0
1951	107,283	1,973,567	18.40	197,357	10.0
1952	72,471	716,707	9.89	71,671	10.0
1953	231,044	1,924,053	8.33	192,405	10.0
1954	141,020	1,236,662	8.77	123,666	10.0
1955	154,990	1,489,203	9.61	148,919	10.0
1956	45,095	477,768	10.59	47,777	10.0
1957	75,409	763,132	10.12	76,313	10.0
1958	11,749	98,136	8.35	9,814	10.0
1959	13,625	121,160	8.89	12,116	10.0
1960	630	6,272	9.96	627	10.0
1961	914	9,815	10.74	982	10.0
1962	480	7,019	14.62	..	..

(a) In 1939 s.c. 1611 read "Palm and palm kernel oil, unbleached or bleached, not edible, and shea butter; palm and palm kernel oil not edible, for the manufacture of soap."

Table 20

IMPORTS: Coconut oil, edible, s.c. 231

Tariff Item 276c

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	19,240	..	2,884	15.0
1947	86	1,852	21.53	324	17.5
1948	26	755	29.04	132	17.5
1949	10,319	200,222	19.40	27,973	14.0
1950	12,244	225,037	18.38	37,051	16.5
1951	9,371	176,227	18.81	32,485	18.4
1952	23,513	386,869	16.45	75,102	19.4
1953	11,763	200,333	17.03	38,174	19.1
1954	5,796	101,954	17.59	19,837	19.5
1955	3,327	54,040	16.24	9,700	17.9
1956	4,853	76,233	15.71	11,614	15.2
1957(a)	8,603	130,151	15.13	18,253	14.0
1958	14,103	228,010	16.17	38,202	16.8
<u>2. United Kingdom</u>					
1939	..	6,165	..	793	12.9
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	7,213	141,312	19.59	17,664	12.5
1950	2,584	46,618	18.04	5,827	12.5
1951	-	-	-	-	-
1952	129	2,463	19.09	308	12.5
1953	506	9,099	17.98	1,137	12.5
1954	436	6,780	15.55	848	12.5
1955	643	9,273	14.42	1,159	12.5
1956	2,422	35,712	14.74	4,464	12.5
1957	6,127	91,971	15.01	11,496	12.5
1958	5,453	91,785	16.83	11,473	12.5

Table 20
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. United States</u>					
1939	..	8,807	..	1,543	17.5
1947	86	1,852	21.53	324	17.5
1948	26	755	29.04	132	17.5
1949	3,106	58,910	18.97	10,309	17.5
1950	9,660	178,419	18.47	31,224	17.5
1951	9,371	176,227	18.81	32,485	18.4
1952	23,252	382,085	16.43	74,388	19.5
1953	10,656	182,412	17.12	35,493	19.5
1954	5,360	95,174	17.76	18,989	20.0
1955	1,865	32,845	17.61	6,496	19.8
1956	1,220	20,681	16.95	3,992	19.3
1957	1,193	20,558	17.23	3,894	18.9
1958	7,974	125,608	15.75	24,871	19.8

(a) s.c. 231 discontinued January 1, 1959. Imports included in s.c. 1603 and s.c. 1628 thereafter.

Table 21

IMPORTS: Coconut oil, not edible, s.c. 1603

Tariff Items 276c(1), (2), (3) and (4)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939 ^(a)	352,504	1,176,378	3.34	67,910	10.0
1947	25,767	414,813	16.10	41,481	10.0
1948	52,438	1,283,407	24.47	127,975	10.0
1949	51,673	774,905	15.00	70,787	10.0
1950	210,688	3,411,247	16.19	39,310	10.0
1951	141,026	2,589,740	18.36	86,197	10.0
1952	133,985	1,451,562	10.83	112,303	10.0
1953	336,054	4,642,999	13.82	39,700	10.0
1954	165,604	2,230,614	13.47	2,949	10.0
1955	315,788	3,146,055	9.96	8,399	10.0
1956	384,046	3,932,179	10.24	25,393	10.0
1957	302,761	3,130,941	10.34	2,456	10.0
1958 ^(b)	453,113	5,385,947	11.89	1,258	10.0
1959	397,134	5,972,074	15.04	10,553	13.8
1960	354,864	4,456,632	12.56	22,506	13.5
1961	579,993	5,780,663	9.97	11,189	11.1
1962	544,021	5,589,627	10.27	..	..
<u>2. United Kingdom</u>					
1939	1	6	6.00	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	3,901	63,286	16.22	-	-
1950	51,702	786,125	15.20	-	-
1951	123	1,993	16.20	-	-
1952	918	9,971	10.86	-	-
1953	18,194	245,507	13.49	-	-
1954	5,221	75,048	14.37	-	-
1955	1,835	18,144	9.89	-	-
1956	6,271	66,362	10.58	-	-
1957	43,750	496,921	11.36	-	-
1958	81,558	1,023,555	12.55	-	-
1959	15,308	251,233	16.41	5,487	12.5
1960	7,210	128,009	17.75	14,161	12.5
1961	1,547	25,806	16.68	3,226	12.5
1962	45	673	14.96	..	..

Table 21
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. Ceylon</u>					
1939	111,006	425,523	3.83	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	344	3,745	10.89	-	-
1950	134,641	2,228,963	16.55	-	-
1951	88,993	1,724,970	19.38	-	-
1952	25,254	314,034	12.44	-	-
1953	289,290	4,000,488	13.83	-	-
1954	158,392	2,126,079	13.42	-	-
1955	306,615	3,043,921	9.93	-	-
1956	356,725	3,611,892	10.13	-	-
1957	257,047	2,609,463	10.15	-	-
1958	106,342	1,204,258	11.32	-	-
1959	221,168	3,293,400	14.89	154	10.0
1960	208,350	2,369,347	11.37	-	-
1961	545,332	5,447,920	9.99	543	12.5
1962	344,222	3,441,191	10.00	..	..
<u>4. Australia</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	-	-	-	-	-
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	-	-	-	-	-
1958	182,501	2,154,749	11.81	-	-
1959	96,076	1,415,455	14.73	-	-
1960	85,729	1,285,253	14.99	-	-
1961	-	-	-	-	-
1962	-	-	-	-	-

Table 21
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>5. United States</u>					
1939	94,335	337,904	3.58	33,791	10.0
1947	25,767	414,813	16.10	41,481	10.0
1948	35,477	843,885	23.79	84,389	10.0
1949	26,249	369,393	14.07	36,939	10.0
1950	24,155	393,097	16.27	39,310	10.0
1951	51,910	862,777	16.62	86,197	10.0
1952	107,813	1,127,557	10.46	112,303	10.0
1953	28,570	397,004	13.90	39,700	10.0
1954	1,991	29,487	14.81	2,949	10.0
1955	7,338	83,990	11.45	8,399	10.0
1956	21,050	253,925	12.06	25,393	10.0
1957	1,964	24,557	12.50	2,456	10.0
1958	2,898	44,221	15.26	1,258	10.0
1959	3,345	62,223	18.60	2,476	14.3
1960	2,073	24,780	11.95	3,304	13.3
1961	9,275	66,539	7.17	7,715	11.7
1962	13,249	146,511	11.06	..	..

(a) In 1939 this class read "cocoanut oil, not edible, for the manufacture of soap".

(b) Beginning January 1, 1959 s.c. 1603 includes part of former s.c. 231, and is entitled "Cocoanut oil, crude and refined".

Table 22

IMPORTS: Peanut oil, edible, s.c. 235

Tariff Item 276d

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	52,616	..	11,542	21.9
1947	8,786	234,590	26.70	5,392	20.0
1948	266	12,118	45.56	2,424	20.0
1949	8,919	198,308	22.23	31,799	16.0
1950	2,877	67,198	23.36	12,887	19.2
1951	3,759	94,258	25.08	16,073	20.0
1952	3,850	80,700	20.96	16,104	20.0
1953	5,158	124,889	24.21	22,995	18.4
1954	2,588	61,143	23.63	11,825	19.3
1955	4,944	83,679	16.93	14,886	17.8
1956	2,779	64,694	23.28	12,940	20.0
1957	2,714	68,897	25.39	13,561	19.7
1958(a)	10,742	194,257	18.08	32,162	16.8
<u>2. United Kingdom</u>					
1939	..	2,613	..	392	15.0
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	7,473	157,243	21.04	23,586	15.0
1950	586	10,749	18.34	1,612	15.0
1951	-	-	-	-	-
1952	41	711	17.34	107	15.0
1953	1,833	39,646	21.63	5,947	15.0
1954	425	8,080	19.01	1,212	15.0
1955	2,244	35,219	15.69	5,283	15.0
1956	-	-	-	-	-
1957	40	803	20.08	120	14.9
1958	6,937	108,269	15.61	16,240	15.0

Table 22
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. Hong Kong</u>					
1939	..	18,619	..	4,646	25.0
1947	77	4,395	57.08	879	20.0
1948	254	11,602	45.68	2,321	20.0
1949	545	19,975	36.65	3,995	20.0
1950	484	15,285	31.58	3,057	20.0
1951	308	8,797	28.56	1,773	20.2
1952	460	13,678	29.73	2,735	20.0
1953	465	13,602	29.25	2,720	20.0
1954	723	16,238	22.46	3,248	20.0
1955	1,643	20,898	12.72	4,173	20.0
1956	1,033	22,249	21.54	4,450	20.0
1957	905	23,493	25.96	4,699	20.0
1958	1,261	30,495	24.18	6,099	20.0
<u>4. United States</u>					
1939	..	1,017	..	203	20.0
1947	864	22,565	26.12	4,513	20.0
1948	12	516	43.00	103	20.0
1949	901	21,090	23.41	4,218	20.0
1950	1,807	41,164	22.78	8,218	20.0
1951	3,451	85,461	24.76	14,300	20.0
1952	3,349	66,311	19.80	13,262	20.0
1953	2,860	71,641	25.05	14,328	20.0
1954	1,440	36,825	25.57	7,365	20.0
1955	934	25,911	27.74	5,182	20.0
1956	1,746	42,445	24.31	8,490	20.0
1957	1,581	41,035	25.96	8,207	20.0
1958	1,404	38,613	27.50	7,705	20.0

(a) s.c. 235 discontinued January 1, 1959. Imports included in s.c. 1613 and 1628 thereafter.

Table 23

IMPORTS: Peanut oil, not edible, s.c. 1613

Tariff Items 276d(1), (2) and (3)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939 ^(a)	..	1,694,942	..	57,300	10.0
1947	89,866	2,216,807	24.67	158,679	10.0
1948	225,599	4,713,749	20.89	58,786	10.0
1949	46,037	951,951	20.68	80,245	10.0
1950	77,631	1,266,570	16.32	15,208	10.0
1951	270,417	6,198,206	22.92	229,140	10.0
1952	14,502	222,787	15.36	22,279	10.0
1953	17,036	306,294	17.98	6,965	10.0
1954	19,656	316,511	16.10	18,381	10.0
1955	159,593	1,830,293	11.47	2,094	10.0
1956	18,810	290,244	15.43	14,536	10.0
1957	45,380	668,676	14.74	49,634	10.0
1958	205,137	2,580,243	12.58	2,075	10.0
1959 ^(b)	102,113	1,302,509	12.76	36,827	14.2
1960	71,194	1,077,365	15.13	40,722	14.7
1961	93,712	1,455,819	15.54	31,819	17.3
1962	188,032	2,628,849	13.98	..	..
<u>2. United Kingdom</u>					
1939	..	1,117,582	..	-	-
1947	-	-	-	-	-
1948	112,000	1,676,000	14.96	-	-
1949	-	-	-	-	-
1950	48,160	762,609	15.83	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	-	-	-	-	-
1955	50,497	666,258	13.19	-	-
1956	8,444	144,886	17.16	-	-
1957	10,703	167,525	15.65	-	-
1958	172,759	2,225,501	12.88	-	-
1959	26,846	346,090	12.89	2,499	15.0
1960	16,440	244,696	14.88	2,198	15.0
1961	66,542	1,002,822	15.07	4,742	15.6
1962	61,178	864,508	14.13	..	..

Table 23
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. Union of South Africa</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	7,753	140,438	18.11	-	-
1954	-	-	-	-	-
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	-	-	-	-	-
1958	31,386	333,990	10.64	-	-
1959	59,750	725,637	12.14	2,350	20.0
1960	40,382	580,601	14.38	2,150	15.0
1961	20,344	301,984	14.84	421	15.0
1962	14,233	200,179	14.06	..	..
<u>4. India</u>					
1939	-	-	-	-	-
1947	22,401	541,376	24.17	-	-
1948	94,170	2,449,762	26.01	-	-
1949	-	-	-	-	-
1950	18,235	345,665	18.96	-	-
1951	178,665	3,881,815	21.73	-	-
1952	-	-	-	-	-
1953	5,902	87,597	14.84	-	-
1954	9,072	130,674	14.40	-	-
1955	107,269	1,137,515	10.60	-	-
1956	-	-	-	-	-
1957	-	-	-	-	-
1958	-	-	-	-	-
1959	-	-	-	-	-
1960	-	-	-	-	-
1961	-	-	-	-	-
1962	-	-	-	-	-

Table 23
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>5. United States</u>					
1939	..	296	..	-	-
1947	11,111	261,290	23.52	26,112	10.0
1948	-	-	-	-	-
1949	6,397	87,852	13.73	8,224	10.0
1950	11,236	158,296	14.09	15,208	10.0
1951	91,752	2,316,391	25.25	229,140	10.0
1952	14,502	222,787	15.36	22,279	10.0
1953	3,381	78,259	23.15	6,965	10.0
1954	10,584	185,837	17.56	18,381	10.0
1955	1,827	26,520	14.52	2,094	10.0
1956	10,366	145,358	14.02	14,536	10.0
1957	34,677	501,151	14.45	49,634	10.0
1958	992	20,752	20.92	2,075	10.0
1959	14,223	202,412	14.23	26,321	13.0
1960	12,887	219,801	17.06	29,921	13.9
1961	5,498	120,156	21.85	20,482	17.0
1962	3,020	81,377	26.95	..	..

- (a) In 1939, consists of "Peanut oil for the manufacture of soap or for canning fish" and "Peanut oil, crude, for refining for edible purposes".
- (b) Beginning in 1959 s.c. 1613 includes part of former s.c. 235 and is entitled "Peanut oil, crude and refined".

Table 24

IMPORTS: Olive oil, edible, s.c. 234

Tariff Item 276e

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	353,083	..	60,252	17.1
1947	5,519	404,392	73.27	59,448	17.9
1948	14,034	605,691	43.16	55,714	10.0
1949	7,214	333,838	46.28	31,099	10.0
1950	17,861	525,047	29.40	42,797	8.4
1951	9,303	347,396	37.34	25,237	7.7
1952	17,726	532,523	30.04	39,125	7.5
1953	16,076	498,931	31.04	37,263	7.5
1954	27,038	685,094	25.34	43,711	6.5
1955	23,673	637,340	26.92	32,516	5.1
1956	16,175	582,457	36.01	28,514	5.0
1957	23,631	812,062	34.36	40,819	5.1
1958 ^(a)	29,697	899,056	30.27	44,817	5.0
<u>2. Italy</u>					
1939	..	263,985	..	44,879	17.0
1947	464	19,422	41.86	3,884	20.0
1948	6,377	306,924	48.13	30,693	10.0
1949	3,604	167,678	46.53	16,728	10.0
1950	7,697	249,263	32.38	21,418	8.6
1951	3,950	158,412	40.10	11,881	7.5
1952	10,096	314,708	31.17	23,603	7.5
1953	10,570	317,732	30.06	23,830	7.5
1954	15,058	386,042	25.64	25,718	6.7
1955	14,428	403,356	27.96	20,331	5.0
1956	6,027	196,632	32.63	9,886	5.0
1957	11,035	396,301	35.91	19,914	5.0
1958	17,848	566,922	31.76	28,656	5.1

Table 24
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. Spain</u>					
1939	..	3,951	..	672	17.0
1947	351	31,649	90.17	1,893	17.0
1948	1,123	50,139	44.65	4,813	10.0
1949	874	36,231	41.45	3,536	10.0
1950	5,267	159,573	30.30	12,678	8.0
1951	2,528	86,398	34.18	6,480	7.5
1952	3,434	99,746	29.05	7,480	7.5
1953	3,718	122,154	32.85	9,162	7.5
1954	6,819	166,853	24.47	9,785	6.0
1955	6,004	147,899	24.63	7,317	5.0
1956	6,485	232,045	35.78	11,602	5.0
1957	2,748	90,853	33.06	4,729	5.4
1958	4,241	119,207	28.11	5,696	5.0
<u>4. United States</u>					
1939	..	6,639	..	1,168	17.6
1947	4,441	347,372	78.22	52,642	17.9
1948	3,834	140,604	36.67	10,604	10.0
1949	598	45,577	76.22	2,860	10.0
1950	1,946	67,360	34.61	4,356	8.4
1951	2,466	87,979	35.68	5,781	8.7
1952	2,801	81,050	28.94	5,286	7.5
1953	646	24,809	38.40	1,861	7.5
1954	1,870	51,590	27.59	3,205	7.3
1955	558	15,204	27.25	1,048	7.0
1956	2,950	123,936	42.01	5,511	5.0
1957	1,245	50,211	40.33	2,695	5.4
1958	871	27,818	31.94	1,348	5.2

(a) s.c. 234 discontinued January 1, 1959. Imports included in s.c. 1610 and 1628 thereafter.

Table 25

IMPORTS: Olive oil for soap, tobacco and textile finishing,
s.c. 1610

Tariff Item 276e

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	6,717	84,772	12.62	-	-
1947	42	1,407	33.50	-	-
1948	780	19,155	24.56	-	-
1949	273	10,228	37.47	-	-
1950	2,166	52,991	24.46	-	-
1951	450	18,123	40.27	-	-
1952	592	16,245	27.44	-	-
1953	364	9,836	27.02	-	-
1954	638	15,254	23.91	-	-
1955	602	14,730	24.47	-	-
1956	423	17,751	41.96	-	-
1957	44	1,528	34.73	-	-
1958	72	1,525	21.18	-	-
1959 ^(a)	31,769	875,465	27.56	43,608	5.0
1960	35,822	966,294	26.97	47,893	5.0
1961	40,358	1,120,428	27.76	55,582	5.0
1962	35,338	1,112,418	31.48	..	..
<u>2. Italy</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	-	-	-	-	-
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	-	-	-	-	-
1958	-	-	-	-	-
1959	18,053	510,726	28.29	25,536	5.0
1960	16,061	470,306	29.28	23,521	5.0
1961	19,313	580,614	30.06	29,034	5.0
1962	12,770	443,566	34.74	..	..

Table 25
(Cont'd)

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>3. Spain</u>					
1939	-	-	-	-	-
1947	-	-	-	-	-
1948	-	-	-	-	-
1949	-	-	-	-	-
1950	-	-	-	-	-
1951	-	-	-	-	-
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	-	-	-	-	-
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	-	-	-	-	-
1958	-	-	-	-	-
1959	8,379	219,783	26.23	10,925	5.0
1960	14,162	326,041	23.02	16,121	5.0
1961	15,863	380,222	23.97	18,848	5.0
1962	12,912	361,300	27.98	..	..
<u>4. United States</u>					
1939	4,095	49,401	12.06	-	-
1947	42	1,407	33.50	-	-
1948	780	19,155	24.56	-	-
1949	205	8,427	41.11	-	-
1950	292	9,573	32.78	-	-
1951	230	8,528	37.08	-	-
1952	482	13,375	27.75	-	-
1953	276	7,733	28.02	-	-
1954	242	6,484	26.79	-	-
1955	602	14,730	24.47	-	-
1956	396	17,499	44.19	-	-
1957	44	1,528	34.73	-	-
1958	48	1,085	22.60	-	-
1959	1,275	40,480	31.75	1,964	5.0
1960	931	35,415	38.04	1,508	5.0
1961	1,485	43,677	29.41	1,881	5.0
1962	1,812	62,099	34.27	..	..

(a) Beginning in 1959 s.c. 1610 includes part of former s.c. 234, and is entitled "Olive oil, crude and refined".

Table 26

IMPORTS: Soya bean oil, edible, s.c. 236

Tariff Item 276f

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	..	167,523	..	38,269	22.8
1947	79,636	1,943,588	24.41	246,334	20.0
1948	57,697	1,371,095	23.76	175,487	20.0
1949	84,967	1,201,857	14.14	175,305	20.0
1950	46,670	878,794	18.83	76,181	20.0
1951	130,033	2,977,412	22.90	518,757	20.0
1952	64,174	895,511	13.95	98,212	20.0
1953	120,772	1,706,933	14.13	287,644	20.0
1954	60,913	974,710	16.00	99,532	20.0
1955	144,902	2,003,529	13.83	339,056	20.0
1956	174,057	2,528,751	14.53	408,931	20.0
1957	164,385	2,255,969	13.72	369,623	20.0
1958 (a)	235,300	3,055,467	12.99	538,326	20.0
<u>2. United States</u>					
1939	..	58,819	..	11,764	20.0
1947	79,636	1,943,588	24.41	246,334	20.0
1948	57,697	1,371,095	23.76	175,487	20.0
1949	84,967	1,201,857	14.14	175,305	20.0
1950	46,670	878,794	18.83	76,181	20.0
1951	130,033	2,977,412	22.90	518,757	20.0
1952	64,174	895,511	13.95	98,212	20.0
1953	120,768	1,706,896	14.13	287,637	20.0
1954	60,913	974,710	16.00	99,532	20.0
1955	144,902	2,003,529	13.83	339,056	20.0
1956	174,013	2,527,894	14.53	408,802	20.0
1957	164,379	2,255,850	13.72	369,605	20.0
1958	234,871	3,049,479	12.98	537,428	20.0

(a) s.c. 236 discontinued January 1, 1959. Imports included in s.c. 1619 and 1628 thereafter.

Table 27

IMPORTS: Soya bean oil for manufacturing purposes, s.c. 1619

Tariff Item 276f

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	15,487	71,449	4.61	-	-
1947	1,278	26,993	21.12	-	-
1948	1,288	26,696	20.73	-	-
1949	19,026	258,572	13.59	-	-
1950	39,344	627,095	15.94	-	-
1951	62,260	1,244,016	19.98	-	-
1952	92,624	1,177,239	12.71	-	-
1953	109,852	1,481,996	13.49	-	-
1954	116,597	1,624,342	13.93	-	-
1955	92,512	1,148,012	12.41	-	-
1956	83,777	1,213,952	14.49	-	-
1957	64,870	881,530	13.59	-	-
1958	67,158	802,865	11.95	-	-
1959 ^(a)	297,607	3,182,959	10.70	331,051	20.0
1960	347,320	3,367,642	9.70	290,122	20.0
1961	211,002	2,751,264	13.04	160,041	20.0
1962	193,017	2,251,312	11.66	..	..
<u>2. United States</u>					
1939	4,272	18,446	4.32	-	-
1947	1,278	26,993	21.12	-	-
1948	1,288	26,696	20.73	-	-
1949	19,026	258,572	13.59	-	-
1950	39,344	627,095	15.94	-	-
1951	62,260	1,244,016	19.98	-	-
1952	92,624	1,177,239	12.71	-	-
1953	109,852	1,481,996	13.49	-	-
1954	116,597	1,624,342	13.93	-	-
1955	92,512	1,148,012	12.41	-	-
1956	83,777	1,213,952	14.49	-	-
1957	64,870	881,530	13.59	-	-
1958	67,158	802,865	11.95	-	-
1959	296,859	3,172,758	10.69	329,521	20.0
1960	346,741	3,360,724	9.69	289,074	20.0
1961	211,002	2,751,264	13.04	160,041	20.0
1962	193,017	2,251,312	11.66	..	..

(a) Beginning in 1959 s.c. 1619 includes part of former s.c. 236, and is entitled "Soya bean oil, crude and refined".

Table 28

IMPORTS: Oils, hydrogenated, blown, dehydrated or sulphonated,
excluding blown or hydrogenated fish, seal or whale oils,
s.c. 1628

Tariff Item 277

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1959 ^(a)	129,234	1,647,512	12.75	327,962	19.9
1960	168,230	2,040,519	12.13	407,881	20.0
1961	189,606	2,874,622	15.16	574,720	20.0
1962	115,544	1,758,922	15.22	..	..
<u>2. United States</u>					
1959	129,160	1,645,667	12.74	327,593	19.9
1960	161,530	1,924,017	11.91	384,630	20.0
1961	180,090	2,721,858	15.11	544,195	20.0
1962	109,768	1,669,716	15.21	..	..

(a) Prior to 1959, included principally under s.c. 231, 233, 234, 235 and 236.

Table 29

IMPORTS: Soya bean oil cake and soya bean oil meal, s.c. 1594

Tariff Items 663c, 663d, 711 and 875a

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1939	449,653	571,508	1.27	-	-
1947	919,041	3,248,203	3.53	-	-
1948	47,341	176,812	3.73	-	-
1949	594,396	2,100,084	3.53	-	-
1950	349,605	1,265,296	3.62	-	-
1951	658,724	2,642,216	4.01	-	-
1952	328,579	1,421,975	4.33	-	-
1953	652,241	2,276,399	3.49	-	-
1954	828,281	3,143,503	3.80	-	-
1955	2,090,482	5,933,136	2.84	-	-
1956	4,313,991	11,505,280	2.67	-	-
1957	3,651,911	8,763,386	2.40	359	20.0
1958	2,904,042	8,204,242	2.83	3,649	20.0
1959	4,984,941	13,985,885	2.81	4,354	19.5
1960	3,832,185	10,230,972	2.67	1,622	19.4
1961	3,964,812	12,931,997	3.26	2,429	19.8
1962	5,511,808	20,129,436	3.65	..	..
<u>2. United States</u>					
1939	427,187	543,870	1.27	-	-
1947	919,041	3,248,203	3.53	-	-
1948	47,341	176,812	3.73	-	-
1949	594,396	2,100,084	3.53	-	-
1950	349,605	1,265,296	3.62	-	-
1951	658,724	2,642,216	4.01	-	-
1952	328,579	1,421,975	4.33	-	-
1953	652,241	2,276,399	3.49	-	-
1954	817,246	3,093,454	3.79	-	-
1955	2,090,442	5,932,311	2.84	-	-
1956	4,313,991	11,505,280	2.67	-	-
1957	3,651,911	8,763,386	2.40	359	20.0
1958	2,904,042	8,204,242	2.83	3,649	20.0
1959	4,984,941	13,985,885	2.81	4,354	19.5
1960	3,832,185	10,230,972	2.67	1,622	19.4
1961	3,964,812	12,931,997	3.26	2,429	19.8
1962	5,511,808	20,129,436	3.65	..	..

Table 30

IMPORTS: Vegetable oils, n.o.p., and mixtures of animal, mineral and vegetable oils, for textiles (cotton softeners),
s.c. 1625

Tariff Items 711 and 208t

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1947 ^(a)	16,671	408,673	24.51	79,894	19.6
1948	16,203	396,468	24.47	76,344	19.3
1949	15,918	382,435	24.03	75,532	19.8
1950	17,549	424,270	24.18	84,087	19.8
1951	22,352	516,030	23.09	102,442	19.9
1952	22,620	472,204	20.88	93,495	19.8
1953	19,783	425,540	21.51	82,199	19.3
1954	18,118	334,270	18.45	64,557	19.3
1955	23,206	456,628	19.68	88,312	19.4
1956	28,948	551,278	19.04	106,628	19.4
1957	23,929	484,858	20.26	90,480	18.9
1958	25,478	536,856	21.07	98,925	18.6
1959	23,149	500,217	21.61	91,981	18.8
1960	23,557	545,044	23.14	99,958	18.7
1961	20,140	487,948	24.23	91,304	19.1
1962	24,288	608,197	25.04	..	..
<u>2. United States</u>					
1947	16,445	406,443	24.72	79,727	19.6
1948	16,203	396,468	24.47	76,344	19.3
1949	15,918	382,435	24.03	75,532	19.8
1950	17,543	424,183	24.18	84,074	19.8
1951	22,323	515,700	23.10	102,392	19.9
1952	22,615	471,160	20.83	93,338	19.8
1953	19,733	416,489	21.11	80,841	19.4
1954	18,097	330,498	18.26	63,991	19.4
1955	23,088	446,620	19.34	86,900	19.5
1956	28,897	542,601	18.78	105,315	19.5
1957	23,556	471,721	20.03	88,503	19.0
1958	25,055	528,394	21.09	97,389	18.6
1959	23,106	493,361	21.35	90,948	18.8
1960	23,477	535,539	22.81	98,469	18.7
1961	20,027	478,919	23.91	89,931	19.1
1962	24,125	593,670	24.61	..	..

(a) Not available in 1939

Table 31

IMPORTS: Cashew nut shell oil, s.c. 1622

Tariff Item 824

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
		<u>1. Total</u> ^(a)	
1947 ^(b)	1,190	27,341	22.98
1948	1,744	43,395	24.88
1949	1,020	24,644	24.16
1950	1,577	32,046	20.32
1951	1,040	23,898	22.98
1952	2,270	57,181	25.19
1953	1,215	27,980	23.03
1954	1,331	25,609	19.24
1955	1,522	33,829	22.23
1956	1,138	16,733	14.70
1957	944	14,879	15.76
1958	701	10,872	15.51
1959	697	10,843	15.56
1960	1,512	24,710	16.34
1961	826	15,219	18.42
1962	1,321	26,508	20.07

(a) All importations have been from the United States.

(b) Not available in 1939

Table 32

IMPORTS: Sunflower seed oil, s.c. 1624

Tariff Item 839

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit</u> <u>Value</u> \$/cwt.	<u>Duty</u> <u>Collected</u> \$	<u>Duty as p.c. of</u> <u>Dutiable Value</u>
<u>1. Total</u>					
1947 ^(a)	329,480	10,442,176	31.69	944,248	9.0
1948	288	9,681	33.61	871	9.0
1949	-	-	-	-	-
1950	163,320	2,554,218	15.64	255,422	10.0
1951	164,434	3,615,702	21.99	361,570	10.0
1952	21,350	307,983	14.43	30,583	10.0
1953	2,351	38,566	16.40	-	-
1954	6,793	94,447	13.90	9,445	10.0
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	-	-	-	-	-
1958	-	-	-	-	-
1959	4	102	25.50	10	9.8
1960	-	-	-	-	-
1961	-	-	-	-	-
1962	9,150	89,504	9.78	..	..
<u>2. Argentina</u>					
1947	329,480	10,442,176	31.69	944,248	9.0
1948	288	9,681	33.61	871	9.0
1949	-	-	-	-	-
1950	163,320	2,554,218	15.64	255,422	10.0
1951	121,240	2,668,529	22.01	266,853	10.0
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	-	-	-	-	-
1955	-	-	-	-	-
1956	-	-	-	-	-
1957	-	-	-	-	-
1958	-	-	-	-	-
1959	4	102	25.50	10	9.8
1960	-	-	-	-	-
1961	-	-	-	-	-
1962	-	-	-	-	-

(a) Not available in 1939

Table 33

EXPORTS: Flax seed n.o.p., s.c. 1420

<u>Year</u>	<u>Quantity</u> bu.	<u>Value</u> \$	<u>Unit Value</u> \$/bu.
<u>Total</u>			
1939	257	568	2.21
1947	2,092	15,746	7.53
1948	4,307,199	23,483,732	5.45
1949	4,085,179	15,896,725	3.89
1950	3,452,719	12,858,810	3.72
1951	2,412,883	11,027,294	4.57
1952	4,050,177	16,038,292	3.96
1953	3,795,073	11,546,026	3.04
1954	4,442,307	13,716,593	3.09
1955	9,672,861	31,278,786	3.23
1956	12,252,296	43,623,504	3.56
1957	21,538,448	64,718,878	3.00
1958	14,278,189	45,046,453	3.15
1959	12,562,123	41,225,120	3.28
1960	14,507,680	47,282,768	3.26
1961(a)	13,854,463	46,269,397	3.34
1962	11,514,888	41,919,970	3.64

(a) Beginning in January, 1961, s.c. 1420 superseded by
s.c. 212-30

Table 34

EXPORTS: Soya beans, s.c. 345

<u>Year</u>	<u>Quantity</u> bu.	<u>Value</u> \$	<u>Unit Value</u> \$/bu.
<u>Total</u>			
1954(a)	650,770	1,861,851	2.86
1955	982,467	2,595,112	2.64
1956	1,407,360	3,797,329	2.70
1957	1,558,439	4,079,565	2.62
1958	3,184,314	7,381,503	2.32
1959	1,965,767	4,582,778	2.33
1960	2,215,804	5,180,727	2.34
1961(b)	3,028,243	8,059,827	2.66
1962	2,732,328	7,703,611	2.82

(a) Not available prior to 1954

(b) Beginning in January, 1961, s.c. 345 superseded by
s.c. 212-60

Table 35

EXPORTS: Rape seed, s.c. 1458

<u>Year</u>	<u>Quantity</u> lb.	<u>Value</u> \$	<u>Unit Value</u> \$/lb.
<u>Total</u>			
1956(a)	60,172,587	3,000,558	.050
1957	264,684,066	13,893,253	.052
1958	284,418,473	12,517,291	.044
1959	225,687,912	10,073,297	.045
1960	259,652,032	13,240,001	.051
1961(b)	271,027,100	13,849,540	.051
1962	429,634,300	20,666,745	.048

(a) Not available prior to 1956

(b) Beginning in January, 1961, s.c. 1458 superseded by
s.c. 212-40

Table 36

EXPORTS: Mustard seed, s.c. 1457

<u>Year</u>	<u>Quantity</u> lb.	<u>Value</u> \$	<u>Unit Value</u> \$/lb.
<u>Total</u>			
1951(a)	16,738,263	1,406,283	.084
1952	20,667,141	1,364,075	.066
1953	17,444,584	974,142	.056
1954	24,537,767	1,293,056	.053
1955	32,195,655	1,598,425	.050
1956	87,167,806	4,042,634	.046
1957	59,145,275	2,921,553	.049
1958	41,637,901	2,046,224	.049
1959	70,497,697	3,512,608	.050
1960	46,706,731	2,604,274	.056
1961(b)	28,470,700	1,775,292	.062
1962	26,761,500	1,739,774	.065

(a) Class established January 1, 1951

(b) Beginning in January, 1961, s.c. 1457 superseded by
s.c. 212-35

Table 37

EXPORTS: Linseed oil cake and linseed oil cake meal, s.c. 1085

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
	<u>Total</u>		
1951(a)	176,546	660,934	3.74
1952	144,619	646,792	4.47
1953	678,685	2,479,054	3.65
1954	502,063	2,099,971	4.18
1955	673,777	2,749,335	4.08
1956	688,760	2,767,081	4.02
1957	591,523	1,915,225	3.24
1958	339,962	1,035,132	3.04
1959	290,449	1,076,733	3.71
1960	223,501	797,348	3.57
1961(b)	320,944	1,059,151	3.30
1962	254,838	1,016,031	3.99

(a) Not available prior to 1951

(b) Beginning in January, 1961, s.c. 1085 superseded by
s.c. 153-30

Table 38

EXPORTS: Soya bean oil cake and soya bean oil cake meal, s.c. 1090

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>Total</u>			
1951(a)	883,586	3,089,361	3.50
1952	869,387	3,945,002	4.54
1953	1,473,430	5,615,614	3.81
1954	1,281,665	5,351,524	4.18
1955	2,985,350	12,445,557	4.17
1956	4,939,187	17,987,334	3.64
1957	4,579,094	15,549,374	3.40
1958	1,720,662	5,818,366	3.38
1959	3,919,774	14,180,195	3.62
1960	3,908,844	13,764,622	3.52
1961(b)	2,665,157	10,327,201	3.87
1962	4,361,342	18,024,125	4.13

(a) Not available prior to 1951

(b) Beginning in January, 1961, s.c. 1090 superseded by
s.c. 153-60

Table 39

EXPORTS: Oilseed cake and oil cake meal, n.o.p., s.c. 1095

<u>Year</u>	<u>Quantity</u> cwt.	<u>Value</u> \$	<u>Unit Value</u> \$/cwt.
<u>Total</u>			
1951(a)	61,868	166,123	2.69
1952	63,688	230,645	3.62
1953	39,213	126,953	3.24
1954	105,213	294,298	2.80
1955	73,680	236,591	3.21
1956	44,298	136,093	3.07
1957	77,350	203,181	2.63
1958	29,178	84,069	2.88
1959	11,778	27,608	2.34
1960	-	-	-
1961(b)	11,166	32,183	2.88
1962	11,284	24,052	2.13

(a) Not available prior to 1951

(b) Beginning in January, 1961, s.c. 1095 superseded by
s.c. 153-99

Table 40

EXPORTS: Linseed or flaxseed oil, s.c. 1130

<u>Year</u>	<u>Quantity</u> gal.	<u>Value</u> \$	<u>Unit Value</u> \$/gal.
<u>Total</u>			
1939	47,925	38,493	.803
1947	1,374,866	3,133,277	2.28
1948	5,212,366	11,899,469	2.28
1949	4,610,417	8,177,399	1.77
1950	1,946,403	3,151,189	1.62
1951	1,290,487	2,598,155	2.01
1952	2,185,385	3,372,654	1.54
1953	3,280,168	3,476,484	1.06
1954	329,070	406,906	1.24
1955	929,839	976,350	1.05
1956	1,641,813	2,172,013	1.32
1957	1,886,193	2,098,715	1.11
1958	1,664,714	1,785,014	1.07
1959	320,411	368,809	1.15
1960	733,522	806,685	1.10
1961(a)	2,129,043	2,642,773	1.24
1962	477,989	588,168	1.23

(a) Beginning in January, 1961, s.c. 1130 superseded by
s.c. 393-28

Table 41

EXPORTS: Soya bean oil, s.c. 1136

<u>Year</u>	<u>Quantity</u> gal.	<u>Value</u> \$	<u>Unit Value</u> \$/gal.
<u>Total</u>			
1956(a)	4,185,164	5,203,798	1.24
1957	4,265,246	4,880,064	1.14
1958	3,075,516	2,943,517	.96
1959	2,894,184	2,643,519	.91
1960	2,175,467	1,992,700	.92
1961(b)	3,263,859	3,848,027	1.18
1962	5,502,750	5,259,710	.96

(a) Not available prior to 1956

(b) Beginning in January, 1961, s.c. 1136 superseded by
s.c. 393-60

Table 42

EXPORTS: Rape seed oil, s.c. 1135

<u>Year</u>	<u>Quantity</u> gal.	<u>Value</u> \$	<u>Unit Value</u> \$/gal.
	<u>Total</u>		
1956(a)	662,415	839,478	1.267
1957	648,607	794,181	1.224
1958	166,238	132,386	.796
1959	17,011	19,973	1.174
1960	30,867	26,714	.865
1961(b)	78,165	91,140	1.166
1962	78,407	76,294	.973

(a) Not available prior to 1956

(b) Beginning in January, 1961, s.c. 1135 superseded by
s.c. 393-56

APPENDIX IITHE CONSUMPTION OF VEGETABLE OILSTable

- | | |
|---|---|
| 1 | The Consumption of Vegetable Oils for Edible Purposes |
| 2 | The Consumption of Vegetable Oils for Inedible Purposes |

Table 1

The Consumption of Vegetable Oils for Edible Purposes
(000 pounds)

	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
<u>Vegetable Oils in Margarine</u>											
Cocoanut Oil	16,059	11,147	10,303	8,131	12,931	17,116	16,863	5,550	(b)	13,470	13,355
Cottonseed Oil	25,728	20,180	19,881	11,508	9,388	7,707	4,373	9,029	10,999	6,855	3,116
Palm Oil(a)	-	5,128	14,311	15,324	14,407	16,002	16,982	10,874	8,286	18,247	13,242
Soybean Oil	37,858	44,018	33,827	34,616	42,335	44,055	53,232	76,104	91,436	65,287	55,193
Sunflowerseed Oil	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	183	(b)	(b)
Other(c)	500	1,061	16	5,771	508	84	5,280	3,971	5,274	7,358	9,237
Total Margarine Use	80,145	81,534	78,338	75,350	79,569	84,964	96,730	105,528	116,178	111,217	94,143
<u>Vegetable Oils in Shortening</u>											
Cocoanut Oil	3,986	4,512	5,843	5,686	5,812	4,048	3,744	1,966	2,712	3,399	2,238
Cottonseed Oil	24,416	17,197	23,778	12,073	13,980	11,026	8,123	9,571	12,290	11,232	7,448
Palm Oil(a)	7,216	13,449	27,540	18,922	13,955	13,565	16,273	11,129	7,449	18,375	19,033
Soybean Oil	32,616	39,370	45,488	45,224	45,581	41,378	52,695	61,569	62,353	46,248	52,180
Sunflowerseed Oil	1,122	703	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Other(c)	1,906	836	1,185	4,699	1,147	1,456	8,062	9,114	6,467	11,894	21,151
Total Shortening	71,262	76,067	103,834	86,604	80,475	71,473	88,897	93,349	91,271	91,148	102,050
<u>Production of Refined</u>											
Cocoanut Oil	13,826	12,452	13,373	12,966	14,606	14,162	14,908	13,853	12,410	15,480	20,149
<u>Production of Salad and</u>											
Cooking Oil	23,284	22,969	28,452	23,278	26,861	30,592	37,199	45,675	57,264	60,212	68,894
GRAND TOTAL	188,517	193,022	223,998	198,198	201,511	201,191	237,734	258,405	277,123	278,057	285,236

(a) Includes Palm Kernel Oil
 (b) Included with other vegetable oils
 (c) Includes Rapeseed Oil and Peanut Oil

Source: Dominion Bureau of Statistics

Table 2

The Consumption of Vegetable Oils for Inedible Purposes(a)
(000 pounds)

	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
<u>Paints</u>									
Castor Oil	2,388	1,924	1,792	1,969	2,181	1,883	1,781	1,826	1,509
Chinawood Oil	4,866	4,671	3,836	3,892	3,536	4,056	3,346	3,072	3,180
Linseed Oil	31,730	33,107	33,036	33,666	30,365	27,761	27,221	26,440	25,166
Oiticica Oil	194	102	73	96	109	70	50	22	26
Soya Bean Oil	5,276	6,758	6,882	6,331	6,835	7,237	9,070	8,294	9,319
Sunflower Seed Oil	-	-	-	-	-	25	-	490	533
<u>Oilcloth and Linoleum</u>									
	15,164	29,739	16,772	15,522	18,020	17,680	15,666	17,747	13,702
165									
Castor Oil	194	182	138	123	128	112	108	112	97
Chinawood Oil	1	115	265(b)	(c)	454	293	232	272	5
Cottonseed Oil	22	20	10	-	-	-	-	-	-
Linseed Oil	14,532	29,337	16,359	14,387	17,289	17,252	15,326	17,363	13,600(d)
Soya Bean Oil	415	85	(b)	1,012(c)	149	23	-	-	-
<u>Soaps & Toilet Preparations & Cleaning Preparations</u>									
	19,988	16,934	14,807	14,666	15,672	14,254	13,504	13,778	12,505
Castor Oil	-	-	-	-	-	-	-	63	66
Cocanut Oil	19,434	16,598	14,437	12,453	15,439	13,960	12,762	12,686	11,981
Linseed Oil	288	152	210	233	205	242	363	251	65
Palm Oil	121	127	151	127	28	-	-	314	26
Soya Bean Oil	145	57	9	-	-	-	-	-	-
Palm Kernel Oil	-	-	-	1,853	-	52	379	464	367

Table 2
(Cont'd)

	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
<u>Plastics</u>									
Linseed Oil	48	64	846	1,107	1,004	1,376	2,232	1,916	1,451
Soya Bean Oil	2,148	2,431	3,492	6,357	6,238	5,879	6,107	7,381	7,020
Castor Oil	-	..	949	1,778	1,218	988	827	65	826
Chinawood Oil	-	-	-	20	181	159	216	320	329
<u>Miscellaneous and Heavy</u>									
<u>Chemicals</u>									
6,140	7,126	5,025	7,353	8,340	6,128	6,441	7,801	9,794	
Castor Oil	2,108	2,274	1,518	1,728	2,083	2,185	2,208	1,999	2,261
Chinawood Oil	43	44	40	39	35	19	159	289	259
Cocoanut Oil	1,400	1,613	1,557	1,479	2,027	1,706	1,701	3,094	4,306
Linseed Oil	2,589	3,195	1,910	3,069	3,116	1,097	995	1,004	1,683
Soya Bean Oil	-	-	-	1,038	1,079	1,121	1,378	1,415	1,285
<u>Other</u>									
3,265	3,259	3,666	2,462	2,509	1,952	1,772	1,963	1,691	
Castor Oil	29	30	69	40	30	47	43	53	33
Chinawood Oil	56	68	63	87	109	86	95	35	37
Cocoanut Oil	5	19	10	16	41	46	67	159	68
Linseed Oil	1,301	1,570	1,442	1,615	1,715	1,209	1,107	1,172	1,099
Palm Oil	<u>1,874</u>	<u>1,572</u>	<u>2,082</u>	<u>704</u>	<u>614</u>	<u>564</u>	<u>460</u>	<u>544</u>	<u>454</u>
GRAND TOTAL	91,207	106,115	91,176	95,219	96,208	89,448	88,233	91,115	87,051

(a) While this table contains the available data, the statistics are known to be incomplete.

(b) Soya bean oil included with chinawood oil

(c) Chinawood oil included with soya bean oil

(d) Estimated

Source: Dominion Bureau of Statistics

APPENDIX III

DATA RELATING TO THE COSTS OF
SOYA BEAN CRUSHING IN CANADA
AND THE UNITED STATES

Data Relating to the Costs of Soya Bean Crushing
In Canada and the United States

The following table provides a general picture of the relationship between the cost of soya beans to Canadian crushers and their revenues from the sale of crude soya bean oil and soya bean oilcake.

Canadian Soya Bean Crushers (Calendar Years)

	<u>1956</u>	<u>1957</u>	<u>1958</u> (dollars)	<u>1959</u>	<u>1960</u>	<u>1961</u>
1. Cost of beans at plants, per bu.	2.620	2.471	2.291	2.206	2.169	2.554
2. Average selling value at works of 10.7 lbs. crude oil	1.509	1.495	1.389	1.169	1.145	1.362
3. Average selling value at works of 47 lbs. soya bean meal	1.563	1.460	1.433	1.537	1.522	1.616
4. Total of 2 and 3	3.072	2.955	2.822	2.706	2.667	2.978
5. Spread between 1 and 4	0.452	0.484	0.531	0.500	0.498	0.424

Source: Compiled from statistics published by the Dominion Bureau of Statistics

The cost of buying soya beans and of transporting them to the crushing plant is usually equivalent to 85 per cent or more of the total revenues from the sale of the oil and the meal. This element of cost is constantly changing with the market price of soya beans. The spread between this cost and total revenues, from which other costs and profits must be met, has varied from a high of 53 cents in 1958 to a low of 42 cents in 1961.

Soya beans are duty-free and a substantial part of Canadian requirements are obtained from the United States. However, the various costs associated with moving soya beans to the crushing plant are higher for Canadian crushers than for United States crushers. Whereas many United States crushers are located in the soya bean growing states, eastern Canadian crushers import soya beans in bulk across the Great Lakes by boat. A spokesman for the crushers placed this additional cost at about eleven cents per bushel.

The disadvantage accruing from this additional cost can be assessed against the costs of shipping soya bean oil and soya bean meal to Canada. If both the oil and meal from a bushel of soya bean

were shipped by rail from Decatur to Toronto, the total freight cost would be 48 cents. In comparison, the total cost of shipping soya beans from Decatur to a U.S. port by rail, and by boat to Toronto would only be about 22 cents, and of this about 11 cents is a cost also accruing to the crushers in the U.S.

Processing costs of the Canadian crushers were supplied to the Board in confidence. The result of a study of the costs of soya bean crushers in the United States for the crop year 1952-3, however, are available and are summarized in the following table:

Cost in United States Solvent Type Mills
(Costs in cents per bushel processed)

<u>Plant size</u> (tons per day)	<u>25</u>	<u>100</u>	<u>200</u>	<u>300</u>	<u>400</u>	<u>1,000</u>
1. Cost of acquiring soya beans ^(a)	1.9	6.9	9.2	10.3	10.3	11.1
2. Solvent	1.7	1.1	0.9	0.8	0.7	0.6
3. Labour (excl. salaries)	14.3	5.3	4.5	4.0	3.8	2.7
4. Depreciation, interest, insurance and taxes	20.8	9.0	7.6	6.5	5.8	5.1
5. Other costs	16.3	12.9	14.1	14.0	14.0	13.8
6. Total of 2, 3, 4 and 5	<u>53.1</u>	<u>29.4</u>	<u>27.1</u>	<u>25.3</u>	<u>24.3</u>	<u>22.1</u>
Total Costs	55.0	36.3	36.3	35.6	34.6	33.2

Source: U.S. Department of Agriculture, Marketing Research Report No. 121, 1956.

(a) Freight, storage, commissions and other costs associated with the transportation and handling of soya beans. The small plants are located closer to the bean growing areas.

The effects of the existing duty on soya bean oil on the position of the eastern crushers can be illustrated. Using the actual average United States prices in the crop year ending September 30, 1962, the landed cost at Toronto of the oil and meal from a bushel of soya beans would have averaged approximately as follows (in Canadian Dollars):

U.S. farm price of soya beans ^(a)	2.39 (\$U.S. 2.28)
Spread between farm price of beans and revenues from sale of oil and meal ^(a)	0.26

(a) From statistics published by the United States Department of Agriculture

Freight Decatur-Toronto on 11 pounds of oil	0.13
Freight Decatur-Toronto on 47 pounds of meal	0.35
Duty of 20 p.c. on 11 pounds of oil at a price of ten cents per pound	0.22
Landed cost of oil and meal at Toronto	3.35

A crusher located at Toronto could meet this competition from the United States even though he were to set aside 72 cents to cover profits and processing costs on his sales at Toronto:

U.S. farm price of soya beans	2.39
Assumed cost of acquisition at Toronto	0.21
Cost of moving oil and meal to local customers	0.03
Margin left for processing costs and profit	<u>0.72</u> 3.35

Using the same example, the Canadian crusher at Toronto would have to reduce his spread from 72 cents on sales in Toronto to 64 cents on sales in Montreal and to 13 cents on sales in Winnipeg. In practice they do not ship meal to Winnipeg, although they do ship oil even further west than Winnipeg at times.

Moreover, his freedom in pricing oil is restricted by factors other than the U.S. price of soya bean oil, including, for example, the prices of competing vegetable oils as well as animal and marine oils. No matter how low his price of oil is depressed by the prices of other competing oils, his domestic price for meal is still governed largely by the U.S. price. The statistics of price spreads in the two countries suggest, in fact, that the United States crusher usually obtains a larger proportion of his total revenue from the sale of oil and a smaller proportion from the sale of meal than does the Canadian crusher.

APPENDIX IV

THE PROCESSING OF OIL-SEEDS
AND VEGETABLE OILS

THE PROCESSING OF OIL-SEEDS AND VEGETABLE OILS

Methods of obtaining usable products from oil-seeds vary according to the nature of the raw material and to the characteristics of the resulting products which are desired. However, the following three stages of processing are commonly encountered:

Oil-seed crushing to produce oilcake, crude oil and certain by products

Refining of vegetable oils to remove impurities

Further processing of vegetable oils to impart particular characteristics to the oils

Oil-seed Crushing

Many types of oil-seeds, including soya beans and flaxseed, have hulls which must be removed. This is accomplished by passing the seeds between rollers so spaced that the seed is crack but no rolled flat. Separation of the hull from the rest of the seed is then accomplished by mechanical classification.

The conversion of the oil-seed into oil and oilcake is usually done by the expeller method, the solvent method or by a combination of the two.

Expeller extraction consists of pressing out the oil in screw presses, often with the assistance of water and steam. The meal is subjected to further grinding and is sold mainly to producers of mixed livestock feeds. Impurities are removed from the oil partly by settling and partly by dissolution in water which is later removed by centrifuging.

In the solvent extraction process, the decorticated seeds are rolled flat into flakes, usually without extracting any of the oil. The flakes are then immersed in a solvent such as hexane to remove the oil from the oilcake. The oil is then separated from the solvent by chemical means. The solvent can be used repeatedly although there are small losses which must be replaced. The solvent process is of more recent origin than the expeller process, and in most applications it is more efficient in the sense that a higher proportion of the oil content of the oil-seed is extracted, leaving less oil in the meal.

The crushers of soya beans frequently treat the crude oil by a process called degumming before selling it to refiners and other processors. Degumming consists of the addition of water to dissolve certain phosphatides; the water containing the phosphatides is then removed by centrifugal force. The phosphatides are known commercially as lecithin and are sold for use as emulsifiers.

There are some uses for vegetable oils in their crude state. Crude linseed oil, for example, is used in the manufacture of linoleum

and oilcloth. To meet the requirements of most applications, however, crude oils must first be treated in a variety of ways.

Refining

The term refining is used by the processors to refer to the removal from crude oils of free fatty acids, waxes, colour bodies and other impurities. In the case of edible oils, these impurities impart colour and taste, whereas blandness of taste and lack of colour are desired. Refining can usually be accomplished by adding caustic soda and water; the mixture is heated in large tanks, or else in pipes forming parts of continuous processing apparatus. In the batch process, the impurities settle to the bottom of the tank; in continuous processing, they are removed by centrifugal force. The impurities, known as soapstock, consist largely of soap and neutral oils and fats. The soapstocks of some oils are used directly in the manufacture of soap, but more frequently they are converted into acid oils by further processing. Acid oils are used in the manufacture of soaps, fatty acids and other products.

After most of the impurities in a vegetable oil have been removed by treatment with caustic soda, the oil is usually filtered through activated earths to remove any remaining colour bodies.

Further Processing

Winterizing, de-odourizing and hydrogenating are important examples of the further processing of vegetable oils.

Some refined oils, such as cottonseed, may still contain waxes which affect the appearance of the oil, especially if it is refrigerated. These waxes are removed by winterizing if the oil is to be sold as a salad or cooking oil. The process consists of rapid chilling, followed by filtration.

Most of the sources of undesirable odour in vegetable oils are volatile, and can be removed by the application of heat in a vacuum.

In the hydrogenation process hydrogen and finely divided nickel are added to the oil and the mixture is subjected to heat and pressure for several hours. In this process, unsaturated oils with low melting points are converted to saturated oils with higher melting points. As a result of the discovery of this and other processes, oils such as soya bean oil, cottonseed oil and many others can now be used in the production of shortening and margarine which must be solid at room temperatures.

APPENDIX V

CONVERSION AND EXTRACTION RATES
OF SELECTED OIL-SEEDS

CONVERSION AND EXTRACTION RATES OF SELECTED OIL-SEEDS

	<u>Pounds per Bushel</u>	<u>Meal Ex- traction Rate</u>	<u>Pounds of Meal per Bushel</u>	<u>Oil Ex- traction Rate</u>	<u>Pounds of Oil per Bushel</u>	<u>Pounds per Gallon Crude Oil</u>
corn	56	44.5%	24.9	3-5%	2-3	9.2
flaxseed	56	60.7%	34	34.5%	19.3	9.3
soybean	60	78.8%	47.3	16.8%	10.1	9.2
rapeseed	50	58%	29	34%	17	9.1
sunflower seed		33%		28%		9.2
mustard seed		70%		23%		10.2
castor seed				43%		9.7
copra				63%		9.1
cottonseed				18%		9.2
peanuts, shelled				42%		9.2
tung nuts				16%		9.4

Source: Canada, Department of Agriculture, Canada Weights and Measures, 1954.
Commonwealth Economic Committee, Vegetable Oils and Oilseeds, 1958.
The Condensed Chemical Dictionary, New York, 1956.

APPENDIX VI

TARIFF HISTORY

Tariff HistoryTariff Item 47

Castor beans, n.o.p.

		<u>British</u> <u>Preferential</u>	<u>Most-Favoured-</u> <u>Nation</u>	<u>General</u>
June 1, 1950	per pound	Free	Free	2 cts.

Prior to June 1, 1950 the item was worded "beans, n.o.p."

January 1, 1948 (GATT)	per pound		Free	
May 2, 1930	per pound	Free	1½ cts.	2 cts.

Tariff Item 47a

Soya beans, n.o.p.

June 1, 1950	per pound	Free	Free	2 cts.
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Prior to June 1, 1950 soya beans were dutiable under tariff item 47, "beans, n.o.p."

January 1, 1948 (GATT)	per pound		Free	
January 1, 1939 (United States Trade Agreement) Soya beans	per pound		Free	
May 2, 1930	per pound	Free	1½ cts.	2 cts.

Tariff Item 68

Linseed oil cake and linseed oil cake meal, cotton seed cake and cotton seed cake meal, and palm nut cake and palm nut cake meal

November 30, 1906		Free	Free	Free
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Tariff Item 70

Flax seed

November 30, 1906	per bushel	7½ cts.	10 cts.	10 cts.
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Tariff Item 72d

Millet and rape seed

	<u>British</u> <u>Preferential</u>	<u>Most-Favoured-</u> <u>Nation</u>	<u>General</u>
January 1, 1948 (GATT)		7½ p.c.	
June 10, 1933 (Canada-France Trade Agreement)		Intermediate Tariff less a discount of 10 per cent	
June 2, 1931	5 p.c.	10 p.c.	10 p.c.

Tariff Item 73

Field seeds, n.o.p., when in packages weighing more than one pound each

January 1, 1948 (GATT)		7½ p.c.	
May 24, 1932 (New Zealand Trade Agreement)	Free		
June 2, 1931	5 p.c.	10 p.c.	15 p.c.

Tariff Item Ex. 73

Mustard (seed)

September 1, 1956	7½ p.c.
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Prior to September 1, 1956 the mustard seed now provided for in tariff item ex. 73 was dutiable under tariff item 73 (see history above).

Tariff Item Ex. 73

Sesame (seed)

May 28, 1950 (GATT)	Free	2½ p.c.
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Prior to May 28, 1950 the sesame seed now provided for in tariff item ex. 73 was dutiable under tariff item 73 (see history above).

Tariff Item 73a

Cotton seed

	<u>British</u> <u>Preferential</u>	<u>Most-Favoured-</u> <u>Nation</u>	<u>General</u>
June 1, 1950	Free	Free	10 p.c.
Prior to June 1, 1950 cotton seed was provided for in tariff item 73.			
January 1, 1948 (GATT)		Free	
May 5, 1932 (New Zealand Trade Agreement)	Free		
June 2, 1931	5 p.c.	10 p.c.	15 p.c.

Tariff Item 76g

Seeds, viz.:— Canary, mustard, celery and sunflower, when in packages weighing more than one pound each, imported for use exclusively in manufacturing or blending operations

June 6, 1951 (GATT)		5 p.c.	
June 1, 1950	5 p.c.	7½ p.c.	10 p.c.
Prior to June 1, 1950 this tariff item was numbered 76d.			
January 1, 1948 (GATT)		7½ p.c.	
June 2, 1931	5 p.c.	10 p.c.	10 p.c.

Tariff Item 77

Beans, viz.:— Tonquin, crude only; locust beans; locust beans, roasted or ground; locust bean meal

March 29, 1950	Free	Free	Free
Prior to April 29, 1950 Item 77 read:— Beans, viz.:— Tonquin, crude only; locust beans; locust bean meal.			
October 13, 1932	Free	Free	Free

Tariff Item 109a

Peanuts, green, in the shell or not further processed than shelled

January 1, 1948 (GATT)	per pound	Free		
May 2, 1930	per pound	Free	1 ct.	1 ct.

Tariff Item 113a

Copra or broken cocoanut meat, not shredded, desiccated or prepared in any manner

		<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
January 1, 1948 (GATT)	per pound	Free	Free	
December 1, 1946 (Order-in-Council)	per pound	Free	Free	
May 13, 1913	per pound	Free	$\frac{3}{4}$ ct.	$\frac{3}{4}$ ct.

From December 1, 1946 to December 31, 1947 the item was qualified by the phrase "for use in Canadian manufactures". Beginning April 1, 1942, copra was exempted from duty under the War Measures Act.

Tariff Item 114

Palm kernels

June 1, 1950	per pound	Free	Free	4 cts.
January 1, 1948 (GATT)			Free	
April 1, 1947	per pound	3 cts.	$3\frac{1}{2}$ cts.	4 cts.

Prior to April 1, 1947 palm kernels were classified under tariff item 114a.

April 6, 1944		Free	Free	Free
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Prior to April 6, 1944, palm kernels were classified under tariff item 114 as "nuts, shelled, n.o.p."

January 1, 1939 (United States Trade Agreement)	per pound		2 cts.	
June 10, 1933 (Canada-France Trade Agreement)	per pound		Intermediate Tariff less a discount of 10 per cent	
November 30, 1906	per pound	3 cts.	$3\frac{1}{2}$ cts.	4 cts.

Tariff Item 258

Linseed or flaxseed oil, raw or boiled

	<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
November 30, 1906 per one hundred pounds	\$1.25	\$1.55	\$1.65

Tariff Item 259a

Sesame seed oil

May 28, 1950 (GATT)		20 p.c.	
May 2, 1936	Free	22½ p.c.	25 p.c.
Prior to May 2, 1936 sesame seed oil was classified under tariff item 259.			
November 30, 1906	15 p.c.	22½ p.c.	25 p.c.

Tariff Item 259b

Rapeseed oil, crude or refined

May 2, 1936	Free	Free	Free
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Previously classified under tariff item 711 (see history below).

Under the United States Trade Agreement of January 1, 1936, rapeseed oil, blown, for manufacturing purposes, was allowed duty-free entry under tariff item ex. 711.

Tariff Item 259c

Castor oil

June 1, 1950	Free	Free	Free
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Prior to June 1, 1950, castor oil was classified under tariff items ex. 208t, ex. 278e and ex. 711

January 1, 1948 (GATT)	Free
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Prior to January 1, 1948 castor oil was classified under tariff items 208t, 278e and 711, viz.:

208t All Chemicals and drugs, when of a kind not produced in Canada, which were on August 20, 1932, dutiable at rates of 15, 25 and 25 p.c. under tariff item 711.

January 1, 1939 (United States
Trade Agreement)

17½ p.c.

October 13, 1932

Free

25 p.c. 25 p.c.

278e Castor oil and soya bean oil for use in the processing of leather, or for use in the manufacture of paints and varnishes, or for use in the processing of textile fibres, including the finishing of fabrics.

January 1, 1942

Free

Free

Free

711 (See below)

Tariff Item 266a

China wood oil

	<u>British</u> <u>Preferential</u>	<u>Most-Favoured-</u> <u>Nation</u>	<u>General</u>
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June 1, 1950

Free

Free

Free

Prior to June 1, 1950, china wood oil was classified under tariff item 266.

January 1, 1948 (GATT)

Free

November 30, 1906

Free

Free

Free

Tariff Item 266b

Oiticica oil

June 1, 1950

per pound

Free

Free

2½ cts.

Prior to June 1, 1950 oiticica oil was classified under tariff items 711 and 838, viz.:

711 All goods not enumerated...

January 1, 1948 (GATT-oiticica oil)

Free

(See below for previous history of tariff item 711)

838 Oiticica oil for use in Canadian manufactures

January 1, 1948 (GATT)

Free

February 2, 1942

per pound

1½ cts.

2 cts.

2½ cts.

Tariff Item 276a(1)

Cotton seed oil, crude, when imported to be refined for edible purposes

	<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
June 1, 1950	Free	10 p.c.	10 p.c.

(See histories of tariff items 276a(2) and 276a(4) which follow)

Tariff Item 276a(2)

Crude cotton seed oil, when imported by manufacturers of cotton seed meal and refined cotton seed oil, for use exclusively in the manufacture of such commodities, in their own factories

June 1, 1950	Free	10 p.c.	10 p.c.
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Prior to June 1, 1950 the goods described in this item were classified under a tariff item numbered 276b.

January 1, 1948 (GATT)		10 p.c.	
October 13, 1932	Free	10 p.c.	10 p.c.

Tariff Item 276a(3)

Cotton seed oil for canning fish

June 1, 1950	Free	Free	Free
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Prior to June 1, 1950 the item was numbered 276

June 24, 1942	Free	Free	Free
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Prior to 1942 the item read "refined cotton seed oils, edible, for canning fish"

November 30, 1906	Free	Free	Free
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Tariff Item 276a(4)

Cotton seed oil, n.o.p.

June 1, 1950	12½ p.c.	17½ p.c.	17½ p.c.
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Prior to June 1, 1950 this item was numbered 276a

May 13, 1913	12½ p.c.	17½ p.c.	17½ p.c.
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Tariff Item 276b(1)

Palm and palm kernel oil, crude, when imported
to be refined for edible purposes

	<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
June 1, 1950	Free	10 p.c.	10 p.c.

(See histories of tariff items 276b(2) and 276b(4) which follow)

Tariff Item 276b(2)

Palm and palm kernel oil, unbleached or
bleached, not edible

June 1, 1950	Free	10 p.c.	10 p.c.
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Prior to June 1, 1950 the item included shea butter and was numbered 277

January 1, 1950 (GATT)		10 p.c.	
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January 1, 1948 (GATT - palm and palm kernel oil crude, when imported to be refined for edible purposes)		10 p.c.	
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October 13, 1932	Free	10 p.c.	10 p.c.
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Tariff Item 276b(3)

Palm and palm kernel oil, not edible, for
manufacturing soap

June 1, 1950	Free	10 p.c.	10 p.c.
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Prior to June 1, 1950 the provisions of this item were included in an item numbered 278

January 1, 1950 (GATT)		10 p.c.	
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October 13, 1932	Free	10 p.c.	10 p.c.
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Tariff Item 276b(4)

Palm and palm kernel oil, n.o.p.

June 1, 1950	15 p.c.	20 p.c.	25 p.c.
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Previously classified under tariff item 711 (see history below)

Tariff Item 276c(1)

Cocoanut oil, crude, when imported to be refined for edible purposes

	<u>British</u> <u>Preferential</u>	<u>Most-Favoured-</u> <u>Nation</u>	<u>General</u>
June 1, 1950	Free	10 p.c.	10 p.c.

See histories of tariff items 276c(3) and 276c(4) which follow.

Tariff Item 276c(2)

Cocoanut oil, not edible, for manufacturing soap

June 1, 1950	Free	10 p.c.	10 p.c.
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Prior to June 1, 1950 the provisions of this item were included in an item numbered 278

October 13, 1932	Free	10 p.c.	10 p.c.
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Tariff Item 276c(3)

Cocoanut oil, not edible, when imported for use in the manufacture of refined cocoanut oil

June 1, 1950	Free	10 p.c.	10 p.c.
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Prior to June 1, 1950 this item was numbered 278c

January 1, 1948 (GATT - cocoanut oil, crude, when imported to be refined for edible purposes)

10 p.c.

October 13, 1932	Free	10 p.c.	10 p.c.
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Tariff Item 276c(4)

Cocoanut oil, n.o.p.

June 1, 1950	12½ p.c.	17½ p.c.	17½ p.c.
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Prior to June 1, 1950 this item was numbered 277a.

May 13, 1913	12½ p.c.	17½ p.c.	17½ p.c.
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Tariff Item 276d(1)

Peanut oil, crude, when imported to be refined for edible purposes

	<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
June 1, 1950	Free	10 p.c.	10 p.c.

Previously classified under tariff item 278b, viz.:

Crude peanut oil, for refining for edible purposes, used as materials in Canadian manufactures

January 1, 1948 (GATT)		10 p.c.	
April 19, 1934	Free	10 p.c.	10 p.c.
October 13, 1932	Free	Free	Free

Tariff Item 276d(2)

Peanut oil for manufacturing soap or canning fish

June 1, 1950	Free	Free	Free
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Prior to June 1, 1950 the provisions of this item were included in tariff item 278a.

April 17, 1914	Free	Free	Free
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Tariff Item 276d(3)

Peanut oil, n.o.p.

June 1, 1950	15 p.c.	20 p.c.	25 p.c.
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Previously classified under tariff item 711 (see history below).

Tariff Items 276e(1), 276e(2), 276e(3) and 276e(4)

- (1) Olive oil for manufacturing soap
- (2) Olive oil for manufacturing tobacco
- (3) Olive oil for canning fish
- (4) Olive oil for use in the processing of textile fibres, including the finishing of fabrics

June 1, 1950	Free	Free	Free
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Prior to June 1, 1950 the provisions of this item were in tariff item 278d.

April 19, 1934	Free	Free	Free
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Tariff Item 276e(5)

Olive oil, n.o.p.

	<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
April 17, 1958 (GATT)		5 p.c.	
June 1, 1950 (GATT)		7½ p.c.	

Prior to June 1, 1950 this item was numbered 262.

January 1, 1948 (GATT)		10 p.c.	
June 10, 1933 (Canada-France Trade Agreement)		Intermediate Tariff less a discount of 15 per cent	
May 2, 1930	Free	20 p.c.	20 p.c.

Tariff Items 276f(1), 276f(2) and 276f(3)

- (1) Soya bean oil for use in the processing of leather
- (2) Soya bean oil for use in the manufacture of paints and varnishes
- (3) Soya bean oil for use in the processing of textile fibres, including the finishing of fabrics

June 1, 1950	Free	Free	Free
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Prior to June 1, 1950 the provisions of these items were included in Tariff Item 278e.

May 1, 1942	Free	Free	Free
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Prior to May 1, 1942 the goods covered by these provisions were dutiable under tariff item 711 (see history below).

Tariff Item 276f(4)

Soya bean oil for manufacturing soap

June 1, 1950	Free	Free	Free
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Prior to June 1, 1950 the provisions of this item were included in Tariff Item 278a.

April 17, 1914	Free	Free	Free
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Tariff Item 276f(5)

Soya bean oil for use in canning fish

	<u>British</u> <u>Preferential</u>	<u>Most-Favoured-</u> <u>Nation</u>	<u>General</u>
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June 1, 1950	Free	Free	Free
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Prior to June 1, 1950 this item was numbered 831.

November 16, 1940	Free	Free	Free
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Prior to November 16, 1940 soya bean oil for canning fish was dutiable under Tariff Item 711 (see history below).

Tariff Item 276f(6)

Soya bean oil, n.o.p.

June 1, 1950	15 p.c.	20 p.c.	25 p.c.
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Prior to June 1, 1950 the goods provided for in this item were classified under Tariff Item 711 (see history below).

Tariff Item 276g

Corn oil, crude or refined

March 21, 1956	15 p.c.	20 p.c.	25 p.c.
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Prior to March 21, 1956, corn oil was dutiable under Tariff Item 711 (see history below).

Tariff Item 277

Oils, hydrogenated, blown, dehydrated or sulphonated, not including blown or hydrogenated fish, seal or whale oils.

April 11, 1951	15 p.c.	20 p.c.	25 p.c.
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Previously classified under tariff item 711 and other items according to nature of material.

Tariff Item 663c

Soya beans, soya bean oil cake and soya bean oil meal, when imported for use as animal or poultry feeds, or as fertilizers, or when imported for use in the manufacture of animal or poultry feeds or fertilizers

	<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
January 1, 1948 (GATT)		Free	
April 26, 1939	Free	Free	Free

Prior to April 26, 1939, the item was worded:

Soya beans, soya bean oil cake and soya bean oil meal, when imported by manufacturers of animal and poultry feeds or of fertilizers for use in the manufacture of animal or poultry feeds or fertilizers in their own factories

May 2, 1936	Free	Free	Free
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Prior to May 2, 1936 the item was worded:

Soya beans, soya bean cake and soya bean meal when imported by manufacturers of cattle foods and fertilizers for use exclusively in the manufacture of cattle foods and fertilizers, in their own factories

May 2, 1930	Free	Free	Free
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Tariff Item 663d

Soya bean oil meal and soya bean flour, when imported by manufacturers of glues or adhesives for use exclusively in the manufacture of such glues or adhesives in their own factories

May 2, 1936	Free	Free	Free
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The soya bean meal was previously classified under tariff item 711 (see history below).

The soya bean flour covered by this item was previously classified under Tariff Item 90(a) at the following rates of duty:

May 2, 1930	15 p.c.	27½ p.c.	30 p.c.
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Tariff Item 711

All goods not enumerated in this schedule as subject to any other rate of duty, and not otherwise declared free

of duty, and not being goods the importation whereof is by law prohibited

	<u>British Preferential</u>	<u>Most-Favoured- Nation</u>	<u>General</u>
January 1, 1948 (GATT)		20 p.c.	
January 1, 1939 (United States Trade Agreement)		20 p.c.	
June 10, 1933 (Canada-France Trade Agreement)		Intermediate Tariff has a discount of 10 per cent	
June 2, 1931	15 p.c.	25 p.c.	25 p.c.

Tariff Item Ex. 711

Peanut oil cake and peanut oilcake meal

June 6, 1951 (GATT)	Free	5 p.c.	
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Previously classified under tariff item 711 (see history above).

Tariff Item 824

Perilla oil and cashew nut shell oil, for use
in Canadian manufactures

April 30, 1941	Free	Free	Free
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Prior to April 30, 1941 cashew nut shell oil was dutiable under tariff item 711 (see history above) and perilla oil was classified under tariff item 824, viz.:

Perilla oil for use in Canadian
manufactures

October 13, 1935	Free	Free	Free
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Previously classified under tariff item 711.

Tariff Item 839

Sunflower seed oil for use in Canadian
manufactures

April 4, 1942	Free	10 p.c.	10 p.c.
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Previously classified under Item 711 (see history above).

APPENDIX VII

THE PROPOSALS OF THE ONTARIO
SOYA-BEAN GROWERS' MARKETING BOARD

The Proposals of the Ontario Soya-Bean Growers' Marketing Board

<u>Goods Subject to Duty</u>	<u>The Proposals</u>		<u>Estimated Ad Valorem Equivalent of Proposed Rates (a)</u>		<u>Existing Tariff Items</u>		
	<u>British Prefer- ential Tariff ¢/lb.</u>	<u>Most- Favoured- Nation Tariff ¢/lb.</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>Tariff Item</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>
Soyabeans	.5	.5	10 p.c.	10 p.c.	47a	Free	Free
Oilcake meals	.2	.3	6 p.c.	9 p.c.	(68, 663c and 663d (ex 711 (711	Free Free 15 p.c.	Free 5 p.c. 20 p.c.
Rapeseed	.5	.5	17 p.c.	17 p.c.	72d	5 p.c.	7½ p.c.
Peanuts, green in shell or not further processed than shelled	.5	.5	5 p.c.	4 p.c.	109a	Free	Free
Copra	1.0	1.0	13 p.c.	13 p.c.	113a	Free	Free
Palm kernels	1.0	1.0	10 p.c.	10 p.c.	114	Free	Free
Soyabean oil, crude or refined	3.0	4.0	20 p.c.	30 p.c.	(276f(1), ((2), (3), (4) and (5) (276f(6)	Free 15 p.c.	Free 20 p.c.
Rapeseed oil, crude or refined	3.0	4.0	18 p.c.	24 p.c.	259b	Free	Free

The Proposals	Estimated Ad Valorem Equivalent of Proposed Rates (a)			Existing Tariff Items		
	British Prefer- ential Tariff s/lb.	Most- Favoured- Nation Tariff s/lb.	Most- Favoured- Nation Tariff	Tariff Item	British Prefer- ential Tariff	Most- Favoured- Nation Tariff
Goods Subject to Duty						
Cottonseed oil, crude or refined	3.0	4.0	32 p.c.	(276a(1) and (2) (276a(3) (276a(4)	Free Free 12½ p.c.	10 p.c. Free 17½ p.c.
Palm and palm kernel oil, crude or refined	3.0	4.0	44 p.c.	(276b(1), (2) (and (3) (276b(4)	Free 15 p.c.	10 p.c. 20 p.c.
Coconut oil, crude or refined	3.0	4.0	58 p.c.	(276c(1), (2) (and (3) (276c(4)	Free 12½ p.c.	10 p.c. 17½ p.c.
Peanut oil, crude or refined	3.0	4.0	19 p.c.	(276d(1) (276d(2) (276d(3)	Free Free 15 p.c.	10 p.c. Free 20 p.c.
Corn oil, crude or refined	3.0	4.0	16 p.c.	276g	15 p.c.	20 p.c.
Corn germ	0.5	0.5	..	711	15 p.c.	20 p.c.

<u>The Proposals</u>	<u>Estimated Ad Valorem Equivalent of Proposed Rates (a)</u>			<u>Existing Tariff Items</u>		
	<u>British Prefer- ential Tariff ¢/lb.</u>	<u>Most- Favoured- Nation Tariff ¢/lb.</u>	<u>British Prefer- ential Tariff p.c.</u>	<u>Tariff Item</u>	<u>British Prefer- ential Tariff p.c.</u>	<u>Most- Favoured- Nation Tariff p.c.</u>
<u>Goods Subject to Duty</u>						
Oils hydrogenated, blown, dehydrated or sulphonated	3.0	4.0	20 p.c.	277	15 p.c.	20 p.c.
Sunflower oil, crude or refined	3.0	4.0	27 p.c.	(839 (711	Free 15 p.c.	10 p.c. 20 p.c.

(a) Calculated by the Board

APPENDIX VIII

THE PROPOSALS OF CO-OP
VEGETABLE OILS LIMITED

The Proposals of Co-Op Vegetable Oils Limited

<u>The Proposals</u>	<u>Estimated Ad Valorem Equivalent of Proposed Rates (a)</u>			<u>Existing Tariff Items</u>		
	<u>British Prefer- ential Tariff £/lb.</u>	<u>Most- Favoured- Nation Tariff £/lb.</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>Tariff Item</u>	<u>British Prefer- ential Tariff</u>
<u>Goods Subject to Duty</u>						
Soya beans	0.5	0.5	10 p.c.	10 p.c.	47a	Free
Oilcake meals, including soybean meal, linseed meal, rapeseed meal, cottonseed meal, and palm nut meal	0.3	0.3	9 p.c.	9 p.c.	68 663c 663d 711 ex 711	Free Free Free Free 15 p.c. Free
Rapeseed	0.4	0.5	12 p.c.	17 p.c.	72d	5 p.c.
Peanuts, green in shell or not further processed than shelled	0.5	0.5	5 p.c.	4 p.c.	109a	Free
Copra	1.3	1.4	17 p.c.	19 p.c.	113a	Free
Palm kernels	1.0	1.0	10 p.c.	10 p.c.	114	Free
						7½ p.c.

<u>The Proposals</u>	<u>Estimated Ad Valorem Equivalent of Proposed Rates (a)</u>			<u>Existing Tariff Items</u>		
	<u>British Prefer- ential Tariff p/lb.</u>	<u>Most- Favoured- Nation Tariff p/lb.</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>Tariff Item</u>	<u>British Prefer- ential Tariff</u>
<u>Goods Subject to Duty</u>						<u>Most- Favoured- Nation Tariff</u>
(1) Soybean oil for use in processing leather, for the manufacture of paints and varnishes, for processing textiles, and for canning fish	2.5	2.5	19 p.c.	19 p.c.	(276f(1), (2), (3) and (5)	Free
(2) Soybean oil n.o.p.	3.5	4.0	27 p.c.	30 p.c.	(276f(4), 276f(6)	Free 15 p.c.
Rapeseed oil, crude or refined	3.5	4.0	21 p.c.	24 p.c.	259b	Free
(1) Cottonseed oil, crude to be refined for edible purposes	2.5	3.8	20 p.c.	30 p.c.	276a(1) and (2)	Free 10 p.c.
(2) Cottonseed oil for canning fish	2.5	2.5	20 p.c.	20 p.c.	276a(3)	Free
(3) Cottonseed oil, n.o.p.	3.5	4.0	28 p.c.	32 p.c.	276a(4)	12½ p.c. 17½ p.c.

The Proposals	Estimated Ad Valorem Equivalent of Proposed Rates (a)			Existing Tariff Items			
	British Prefer- ential Tariff ¢/lb.	Most- Favoured- Nation Tariff ¢/lb.	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	Tariff Item	British Prefer- ential Tariff	Most- Favoured- Nation Tariff
Goods Subject to Duty							
(1) Palm and palm kernel oil, crude to be refined for edible purposes	2.0	3.0	31 p.c.	33 p.c.	276b(1)	Free	10 p.c.
(2) Palm and palm kernel oil, n.o.p.	3.5	4.0	36 p.c.	44 p.c.	(276b(2) and (3) 276b(4)	Free 15 p.c.	10 p.c. 20 p.c.
(1) Coconut oil, crude to be refined for edible purposes	2.0	3.2	19 p.c.	43 p.c.	276c(1)	Free	10 p.c.
(2) Coconut oil, n.o.p.	3.0	4.0	29 p.c.	58 p.c.	(276c(2) and (3) 276c(4)	Free 12½ p.c.	10 p.c. 17½ p.c.
Peanut oil, crude to be refined for edible purposes	2.5	4.0	17 p.c.	19 p.c.	276d(1)	Free	10 p.c.
(2) Peanut oil for canning fish	2.5	2.5	17 p.c.	12 p.c.	276d(2)	Free	Free
(3) Peanut oil, n.o.p.	3.5	4.0	23 p.c.	19 p.c.	276d(3)	15 p.c.	20 p.c.

<u>The Proposals</u>	<u>Estimated Ad Valorem Equivalent of Proposed Rates (a)</u>		<u>Existing Tariff Items</u>		
	<u>British Prefer- ential Tariff £/lb.</u>	<u>Most- Favoured- Nation Tariff £/lb.</u>	<u>Tariff Item</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>
<u>Goods Subject to Duty</u>					
Corn oil, crude or refined	4.0	4.5	276g	15 p.c.	20 p.c.
Corn germ	1.5	1.5	711	15 p.c.	20 p.c.
Oils, hydrogenated, blown, dehydrated, or sulphonated	4.0	4.5	277	15 p.c.	20 p.c.
Sunflower oil, crude or refined	3.5	4.0	839	Free	10 p.c.

(a) Calculated by the Board

APPENDIX IX

THE PROPOSALS OF THE EDIBLE
OIL-SEED CRUSHERS

November 3, 1961.

The Secretary,
Tariff Board,
219 Argyle Street,
OTTAWA, Ontario.

Dear Sir: Re: Tariff Board Reference 131

The Soybean Crushers in Eastern Canada, in submitting their proposals regarding Tariff Board Reference 131, deem it necessary to divide the various items under the reference as follows:

1. Items on which we propose the retention of existing items and rates of duty:

- (a) 47 - Castor Beans
- (b) 47a - Soya Beans
- (c) 73a - Cottonseed
- (d) 109a- Peanuts
- (e) 113a- Copra
- (f) 114 - Palm Kernels
- (g) 663c- Soya Beans, etc.
- (h) 76g- Seeds, Sunflower, etc.
- (i) 77 - Beans, n.o.p.
- (j) 276f #6 - Soybean Oil, n.o.p.
- (k) 276g - Corn Oil
- (l) 259a - Sesame Seed Oil

2. Items on which the imposition of a duty is proposed:

276f - Items 1, 2, 3, & 4.

These items all cover Soybean Oil for industrial purposes and should be assessed duty at rates of

15% - B.P.
20% - M.F.N.
25% - General

663d - Soybean Meal and Flour - These items should be cancelled and these imports dutiable under Item 711.

3. Items on which we propose new rates of duty based on the contingency that the existing Ottawa Agreements on Empire Preferences are altered or cancelled, resulting in the exclusion of the duty free entry into the United Kingdom and Commonwealth Markets of the products from Canadian crushers:

- (a) Cottonseed Oils - Item 276a - (1)(2) & (4)
(b) Palm and Palm
Kernel Oil - Item 276b - (1)(2)(3) & (4)
(c) Coconut Oils - Item 276c - (1)(2)(3) & (4)
(d) Peanut Oils - Item 276d - (1)(2) - for manufacture of
soap & (3)

- (e) Sunflower Oil - Item 839
- (f) Rapeseed Oil - Item 259b

On the above items we propose, based on the above mentioned contingency, rates of duty as follows:

- (i) British Preferential and Most Favoured Nations:

20% when imported in crude form and
30% when imported in refined

- (ii) A General Tariff of:

25% when imported in crude form and
35% when imported refined.

4. Items on which we propose an alteration in the wording to clarify description, etc.

- (a) 276a - Cottonseed Oil
- (b) 276b - Palm and Palm Kernel Oil
- (c) 276c - Cocoanut Oil
- (d) 276d - Peanut Oil
- (e) 276e - Olive Oil
- (f) 276f - Soybean Oil

We propose that the present sub-divisions in each of these items be altered to read:

- (i) Crude - for edible purposes
- (ii) Crude - for other purposes
- (iii) Refined or further processed than crude for edible purposes
- (iv) Refined or further processed than crude for use in canning fish
- (v) Refined or further processed than crude for other purposes

5. Items on which we, as Soybean Crushers, are not prepared at this time specifically to recommend changes in rates of duty, but wish to reserve the right to propose changes if subsequent tariff proposals, other than those suggested herein, alter the existing relationship between these items and products of soybean processing.

- (a) 68 - Linseed Cake and Meal
- (b) 70 - Flaxseed
- (c) 258 - Linseed Oils
- (d) 259c- Castor Oil
- (e) 266b- Oiticica Oil
- (f) 824 - Perilla Oil
- (g) 276e- Olive Oil
- (h) 72d- Millet & Rapeseed
- (i) 73 - Field Seeds, n.o.p.
- (j) 277 - Oils, miscellaneous refined
- (k) 585a- Tall Oil - Removed Tariff Notice - R 126 Nov. 1, 1961
- (l) 266a- China Wood Oil
- (m) Ex 711 - Peanut Cake & Meal

Our Brief containing relevant facts and arguments in support of our abovementioned proposals will be submitted not later than December 4, 1961.

The three companies submitting this Brief process practically the entire quantity of soybeans crushed in Canada.

Yours very truly,

Canadian Vegetable Oil Processing Limited
Toronto Elevators Division - Maple Leaf Mills Ltd.
Victory Soya Mills Limited

APPENDIX X

PROPOSALS BY FIVE VEGETABLE
OIL PROCESSORS

Proposals by Five Vegetable Oil Processors (a)

<u>Proposed Wording and Rates</u>		<u>Existing Tariff Items</u>		
<u>Goods Subject to Duty and Free Goods</u>	<u>British Preferential Tariff</u>	<u>Most-Favoured-Nation Tariff</u>	<u>Tariff Item</u>	<u>Goods Subject to Duty and Free Goods</u>
Sesame seed oil, crude	Free	20 p.c.	259a	Sesame seed oil, crude
Rapeseed oil, crude	Free	Free	259b	Rapeseed oil, crude or refined
Rapeseed oil, refined and/or further processed	10 p.c.	10 p.c.	277	Oils, hydrogenated, blown, dehydrated or sulphonated, not including blown or hydrogenated fish, seal or whale oils.....
Cottonseed oil, crude	Free	10 p.c.	276a	(1) Cotton seed oil, crude, when imported to be refined for edible purposes.....
Cottonseed oil, refined and/or further processed	15 p.c.	20 p.c.		(2) Crude cotton seed oil, when imported by manufacturers of cotton seed meal and refined cotton seed oil, for use exclusively in the manufacture of such commodities, in their own factories
				Free
				10 p.c.

<u>Proposed Wording and Rates</u>			<u>Existing Tariff Items</u>			
<u>Goods Subject to Duty and Free Goods</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>Tariff Item</u>	<u>Goods Subject to Duty and Free Goods</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>
			(	(3) Cotton seed oil for canning fish.....	Free	Free
			(	(4) Cotton seed oil, n.o.p....	12½ p.c.	17½ p.c.
			(	Oils, hydrogenated.....	15 p.c.	20 p.c.
Palm oil, crude	Free	10 p.c.	276b	(1) Palm and palm kernel oil, crude, when imported to be refined for edible purposes.....	Free	10 p.c.
Palm oil, refined and/ or further processed	15 p.c.	20 p.c.		(2) Palm and palm kernel oil, unbleached or bleached, not edible.....	Free	10 p.c.
Palm kernel oil, crude	Free	10 p.c.		(3) Palm and palm kernel oil, not edible, for manu- facturing soap.....	Free	10 p.c.
Palm kernel oil, refined and/or further processed	15 p.c.	20 p.c.		(4) Palm and palm kernel oil, n.o.p.....	15 p.c.	20 p.c.
Cocoanut oil, crude	Free	10 p.c.	276c	(1) Cocoanut oil, crude, when imported to be refined for edible purposes.....	Free	10 p.c.

Proposed Wording and Rates			Existing Tariff Items			
Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff
			(	(2) Coconut oil, not edible, for manufacturing soap.....	Free	10 p.c.
			(	(3) Coconut oil, not edible, when imported for use in the manufacture of refined cocoa- nut oil.....	Free	10 p.c.
			(	(4) Coconut oil, n.o.p.....	12½ p.c.	17½ p.c.
Peanut oil, crude	Free	10 p.c.	276d	(1) Peanut oil, crude, when im- ported to be refined for edible purposes.....	Free	10 p.c.
			(	(2) Peanut oil for manufacturing soap or for canning fish....	Free	Free
Peanut oil, refined and/ or further processed	15 p.c.	20 p.c.		(3) Peanut oil, n.o.p.....	15 p.c.	20 p.c.
			(	Oils, hydrogenated.....	15 p.c.	20 p.c.
			276e	(1) Olive oil for manufacturing soap.....	Free	Free
			(	(2) Olive oil for manufacturing tobacco.....	Free	Free
Olive oil	Free	Free				

<u>Proposed Wording and Rates</u>		<u>Existing Tariff Items</u>	
<u>Goods Subject to Duty and Free Goods</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>	<u>Tariff Item</u>
			(3) Olive oil for canning fish..
		Free	
			(4) Olive oil for use in the processing of textile fibres, including the finishing of fabrics....
		Free	
			(5) Olive oil, n.o.p..... GATT.....
		Free	
		10 p.c. 5 p.c.	
Soybean oil, crude	15 p.c.		(1) Soya bean oil for use in the processing of leather..
		Free	
			(2) Soya bean oil for use in the manufacture of paints and varnishes.....
		Free	
			(3) Soya bean oil for use in the processing of textile fibres, including the finishing of fabrics.....
		Free	
			(4) Soya bean oil for manufac- turing soap.....
		Free	
			(5) Soya bean oil for use in canning fish.....
		Free	

Proposed Wording and Rates

<u>Goods Subject to Duty and Free Goods</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>
Corn oil, crude or refined and/or further processed	15 p.c.	20 p.c.
Sunflowerseed oil, crude	Free	10 p.c.
Sunflowerseed oil, re- fined and/or further processed	15 p.c.	20 p.c.
Safflower oil, crude	Free	10 p.c.
Safflower oil, refined and/or further process- ed	15 p.c.	20 p.c.

Existing Tariff Items

<u>Tariff Item</u>	<u>Goods Subject to Duty and Free Goods</u>	<u>British Prefer- ential Tariff</u>	<u>Most- Favoured- Nation Tariff</u>
(277	(6) Soya bean oil, n.o.p..... Oils, hydrogenated.....	15 p.c.	20 p.c.
(276g	Corn oil, crude or refined..	15 p.c.	20 p.c.
(277	Oils, hydrogenated.....	15 p.c.	20 p.c.
(839	Sunflower seed oil for use in Canadian manufactures.....	Free	10 p.c.
(277	Oils, hydrogenated.....	15 p.c.	20 p.c.
(711	All goods.....	15 p.c.	20 p.c.
(711	All goods.....	15 p.c.	20 p.c.
(277	Oils, hydrogenated.....	15 p.c.	20 p.c.
(711	All goods.....	15 p.c.	20 p.c.

<u>Proposed Wording and Rates</u>			<u>Existing Tariff Items</u>			
<u>Goods Subject to Duty and Free Goods</u>	<u>British Preferential Tariff</u>	<u>Most-Favoured-Nation Tariff</u>	<u>Tariff Item</u>	<u>Goods Subject to Duty and Free Goods</u>	<u>British Preferential Tariff</u>	<u>Most-Favoured-Nation Tariff</u>
Vegetable oils and mixtures thereof, n.o.p., including mixtures containing fats or oils of animal or marine origin	15 p.c.	20 p.c.	(277	Oils, hydrogenated.....	15 p.c.	20 p.c.
			(
			(
			(
			(711	All goods.....	15 p.c.	20 p.c.

(a) Canada Packers Limited
 Colgate-Palmolive Limited
 Lever Brothers Limited
 Procter & Gamble Company of Canada, Limited
 Swift Canadian Company Limited



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